APRIL 24, 1961

PAPER TRADE JOURNAL

Special Equipment Needed? or Is Pulp Handling Just Another Job?

Modern Water Treatment Plants Typified by CCC's Installation

What's New About Bleaching Cold Soda, Other Chemi-Mechano Pulps?

Recent Developments in Finishing Equipment for the Past Half-Year

Contents of the Week, pages 4-5

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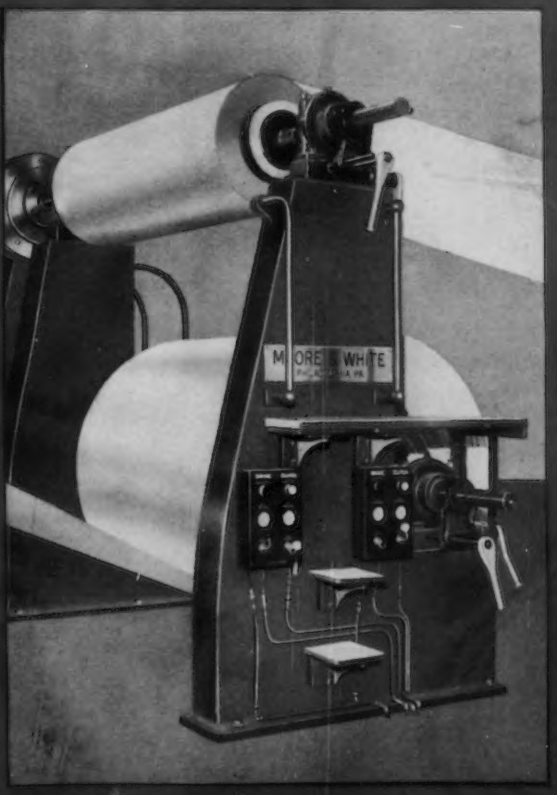

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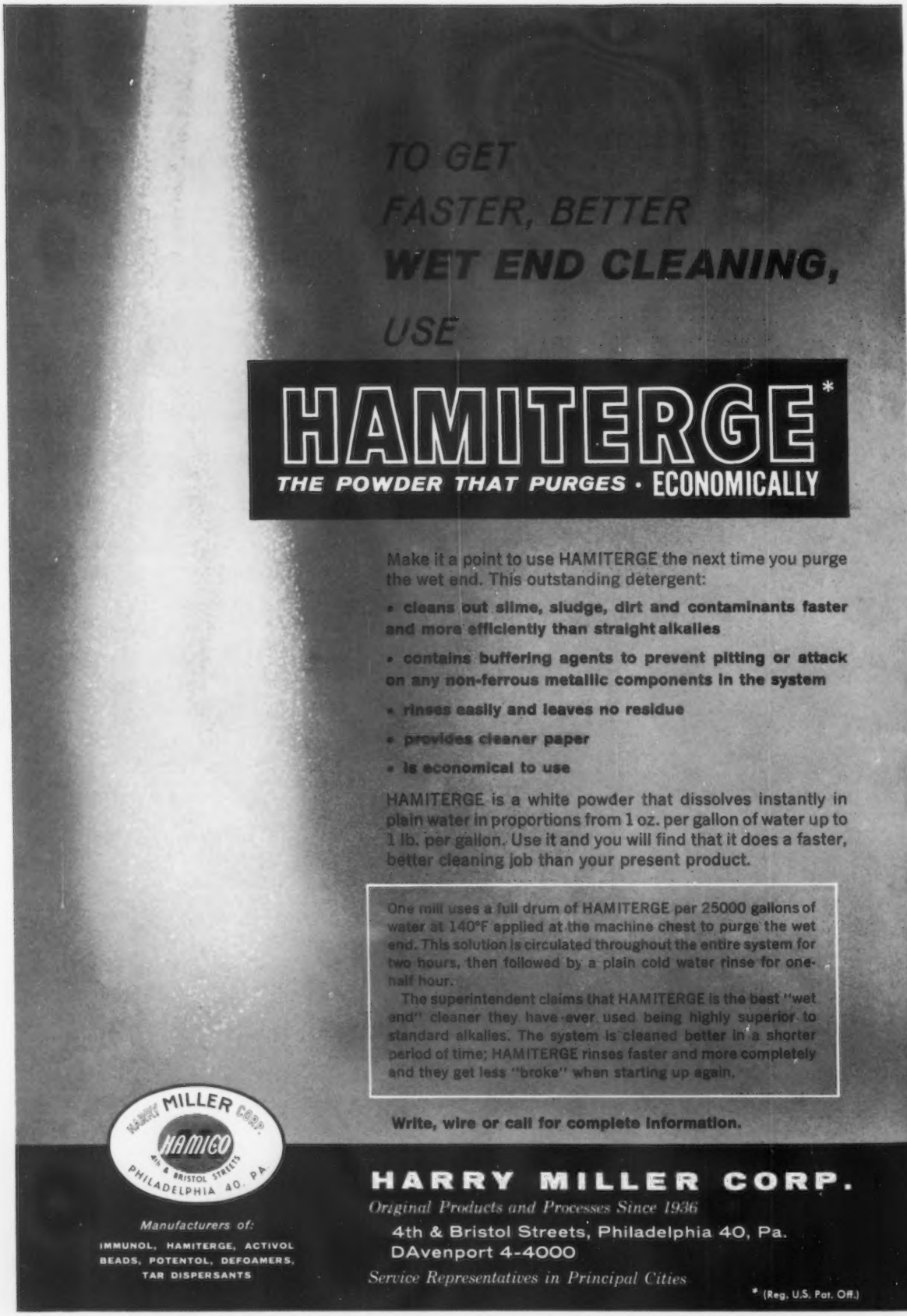
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WET END CLEANING,
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THE POWDER THAT PURGES · ECONOMICALLY
Make it a point to use HAMITERGE the next time you purge the wet end. This outstanding detergent:
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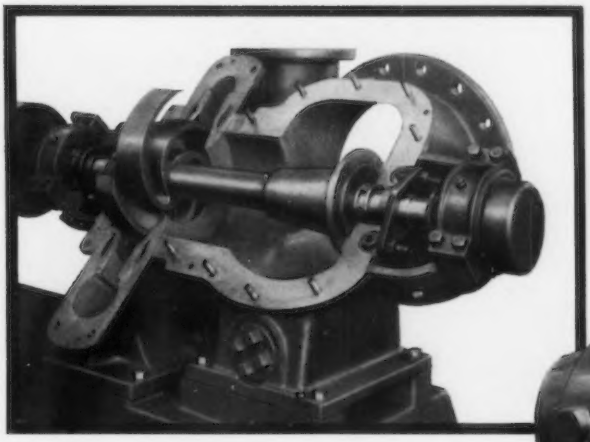

"Our men like it very much. We have no hesitation in recommending it as a premium pump."

Victor E. Fishburn
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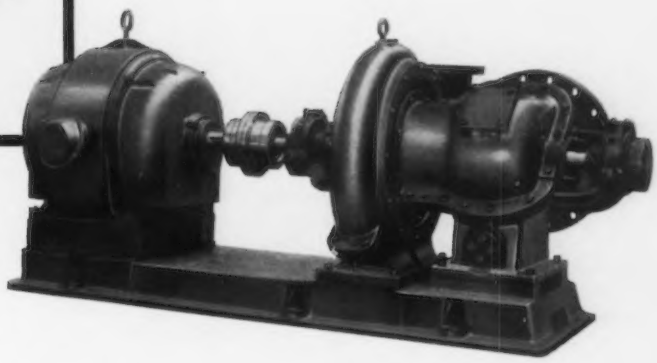

"Our people have nothing but praise for them. The fully diagonally split casing lends itself to quick dismantling and reassembly for repairs when needed. This is very seldom as we have found these pumps to be very dependable and maintenance free."

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

Week of April 24, 1961
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FEATURED THIS WEEK

Modern Water Treatment Plant Provides Process Water at Low Cost

Using the efficient plant at Continental Can's new Augusta, Ga., mill as a model, this article describes how process water can be prepared for pulp and paper mills at minimum capital investment—C. T. Wise **20**

Keep Unloading and Storage of Pulp Bales In Proper Perspective

Can special equipment for handling pulp bales be justified for your mill? Or should you consider careful integration of these facilities with overall material handling operations?—G. E. Stefonik **24**

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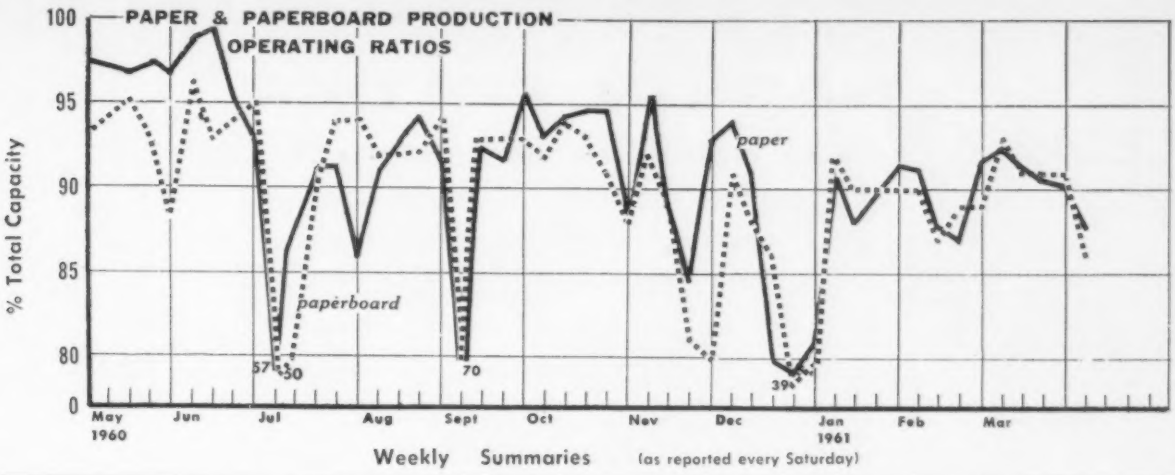

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REMEMBER THESE DATES

Technical Ass'n of the Pulp and Paper Industry, 12th Annual Coating Conference, Statler-Hilton, Buffalo, N. Y.	MAY 8-10
Paper Industry Management Ass'n National Meeting, Robert Meyer Hotel, Jacksonville, Fla.	JUNE 7-9

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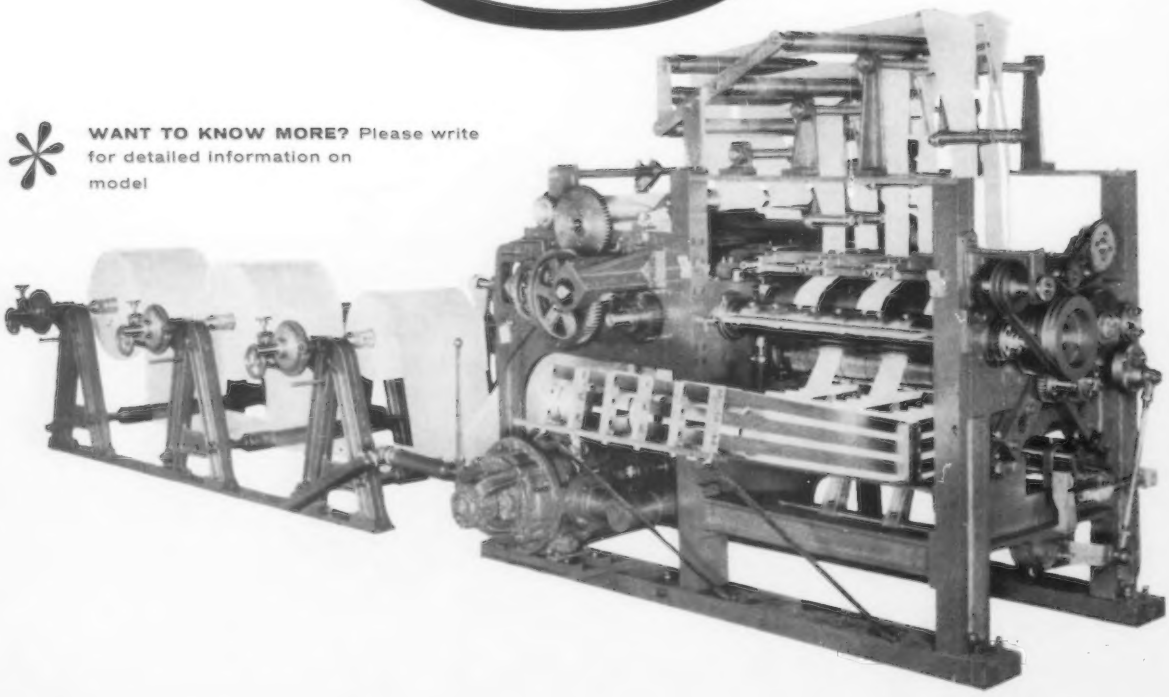

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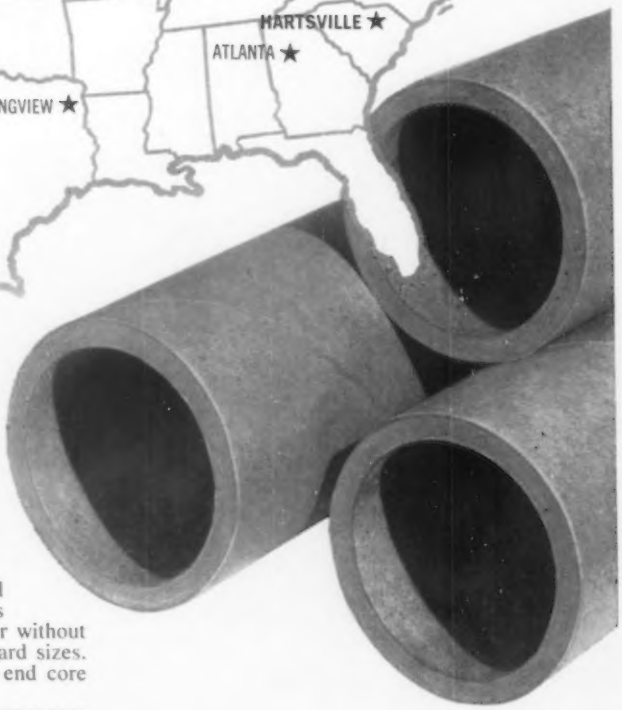

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When the Johnson Rotary Syphon was ready to go, it was our intention to keep it under wraps for a while . . . until it had been thoroughly field-tested; until we had licked all installation problems; until we had a reasonable inventory on hand.

But good news has a way of getting around, and the clamor for test installations began almost before the patterns were finished. Today Johnson Rotary Syphons are operating in more than 50 mills. Many of these have already embarked on programs of complete conversion.

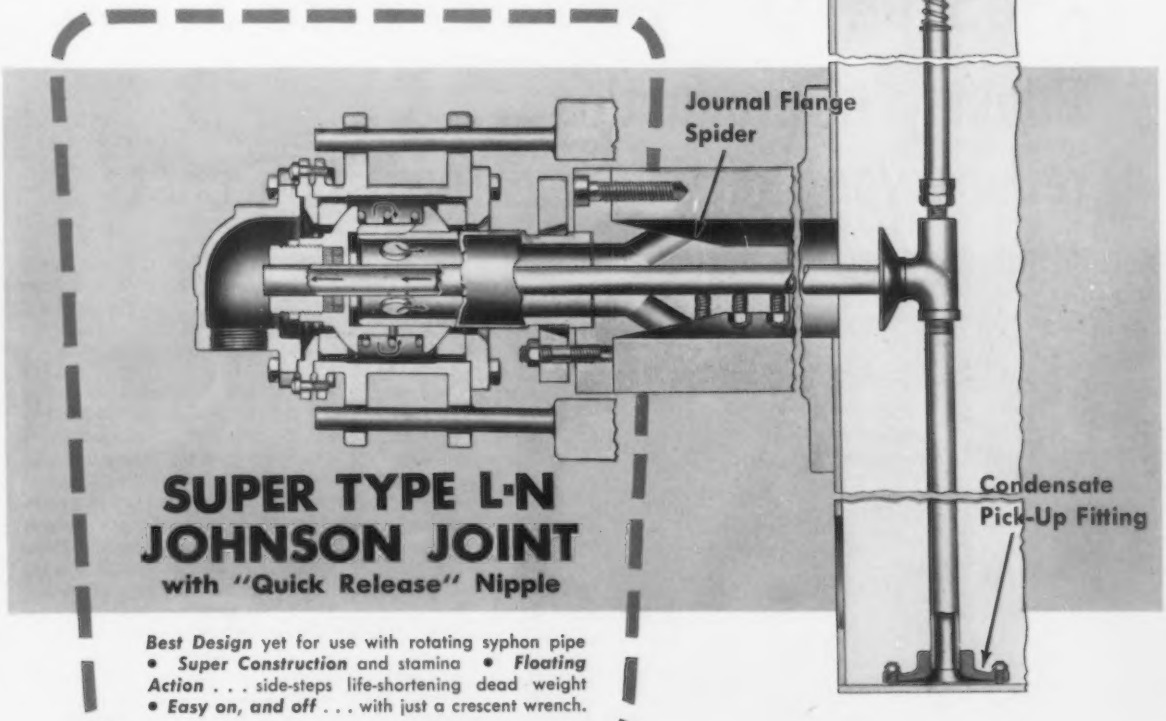
It is no longer a secret that the Johnson Rotary Syphon represents an important breakthrough in draining condensate from dryer rolls of paper machines. A new concept of pick-up design holds condensate film to a minimum, for optimum transfer of heat units to dryer shell. Better drainage helps reduce horsepower demand; eases bearing wear caused by prolonged "cascading"; cuts maintenance all along the line.

Ease of installation is a welcome feature. The Johnson Rotary Syphon can be inserted right through the manhole; there's no need to get inside, no internal drilling or tapping. There's even a journal-inserted syphon for dryers with handholes only. The Rotary Syphon can be installed anywhere along the face of the dryer shell.

As a logical sequel to the Johnson Rotary Pressure Joint, this new Rotary Syphon completes the task of getting steam in and condensate out of dryer rolls and squeezing maximum effect out of the heat units contained. One secret remains for you to discover: just how much it can improve production and cut costs in your mill!

For engineering data — with the full story of research, design and construction ask for copy of "Condensate Behavior in Paper Machines"

The *New* JOHNSON ROTARY SYPHON



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- ***Super Construction*** and stamina
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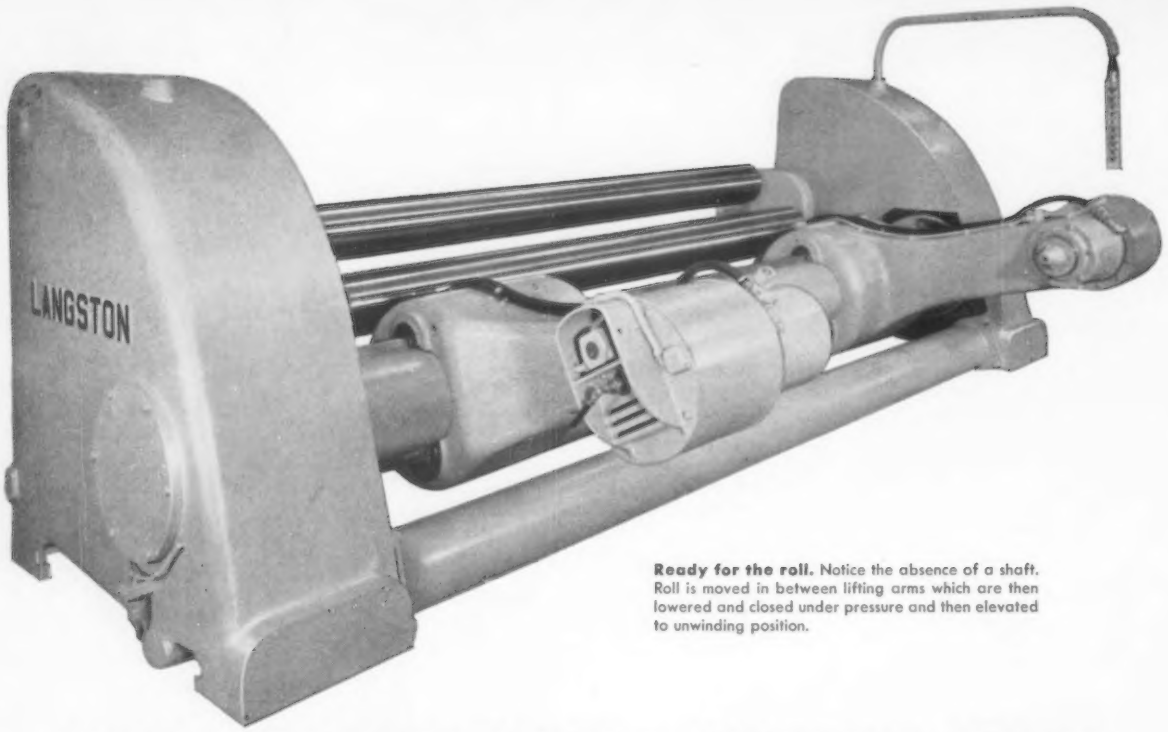
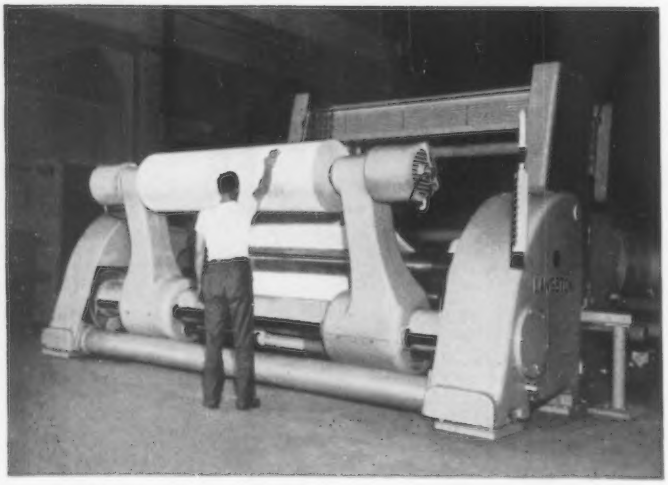


Ready for the roll. Notice the absence of a shaft. Roll is moved in between lifting arms which are then lowered and closed under pressure and then elevated to unwinding position.

LANGSTON SHAFTLESS UNWIND STAND

Boost your production . . . reduce your slitting and rewinding costs



Easy, fast, completely safe. One man does everything. Operating pushbutton controls, he closes lifting arms, elevates roll, sets brakes.

One man can load the heaviest roll. No heavy shaft to handle. No cone tightening. No couplings to engage. No crane lifting. Just pushbuttons. This is the Langston shaftless unwind stand for rewinding and converting applications.

You not only save time, you also get better unwinding. Roll can be positioned laterally by pushbutton control—even when the machine is running. It's held firmly under pressure for complete safety throughout the unwind. Several braking arrangements can be provided to handle a wide range of grades and conditions. Available extras provide for handling very narrow rolls; for constant tensioning; for automatic braking of idler rolls; for automatic web alignment and side register control; for web oscillation; and for local or remote control.

This new Langston shaftless unwind stand can be used with any make of slitter. Available for maximum roll widths up to 140 in. and diameters to 84 in. For complete information, write Samuel M. Langston Co., Camden 4, N. J.

Langston LEADERSHIP . . . BY DESIGN

Trends

Editor Evans Overall Report on Europe

Bright European Outlook for N.A. Mills

The European countries and Great Britain seem to be shaking off all signs of a recession, with the spring upswing in business. To North American pulp, paper and paperboard mills this should mean that their potential sales to the United Kingdom and the Continent for 1961 should, at least, equal those of 1960. An expansion of this will depend on the aggressive sales activities of the N. A. mills to meet the increased offerings from Scandinavia resulting from new capacity now coming in from these northern countries.

General European Economic Picture

It now appears that all European countries (west of the Iron Curtain at least) set new records for paper and paperboard production in 1960. Output in 1961 will probably show another new high, failing a major economic upset. One hears particular reference in all countries to the continued high level of economic activity in Germany. It seems generally believed that the benefits of the common market and the European Free Trade Association have been greater than anticipated earlier. Therefore, further improvements are expected as these programs progress. There are exceptions, of course.

Russian Paper Expansion Rolling

Expansion plans of the Russian pulp and paper industry are moving into high gear. Last week it was announced that the USSR had placed orders for four large high speed tissue machines with Walmsleys, British affiliate of Beloit. In addition I have talked with organizations which have recently been asked to quote on a very large kraft paper mill, further newsprint machines and an additional dissolving pulp mill. It does not appear that these represent a new program but rather that the present five-year plan is being aggressively pursued.

Miscellaneous Comments On European Scene

There has been a striking growth in the number of supermarkets since I was here two years ago. They seem much in evidence but in varying degrees from country to country. Everyone expects this trend to continue markedly, so that the demand for papers and boards used in all kinds of food packaging can, it seems, only show strong upward growth . . . Because of lower consumption of individual grades there is little tendency to concentrate a mill or machine on one or a few grades as in North America. Yet in spite of this, quality standards are as high or higher.

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PAPER TRADE JOURNAL

WEEK OF APRIL 24, 1961

Port Alberni Expansion Rolling Ahead

Steady progress is being made by the MacMillan, Blodel and Powell River Co. in connection with its new paper machine installation at Port Alberni, B. C. Preliminary engineering has been completed and a new woodroom practically constructed and the machine has been ordered. Installation of the N. 5 newsprint machine and auxiliary facilities is scheduled for completion in the summer of 1963.

The machine will have a width of 324 inches with a maximum production potential of 450 tons of newsprint daily. It will be preceeded by centrifugal cleaners and pressure screens.

An improved headbox design, press design and a wire length of 150 feet are significant features of the new machine.

Finishing room equipment has been further developed and rolls will be automatically wrapped with an improved end band crimper. Hydraulic bumpers on the roll handling equipment will reduce possible roll damage.

New Pulp Mill For Brazil

The Interamerican Bank has announced a $4.7 million loan to Lutcher Celulose e Papel S.A., a Brazilian firm, to help finance construction of a pulp and paper mill in Parana State, Brazil. (Wall Street Journal, 4/3/61)

Scott Starts Distribution Center at Fort Edward

Early in May, Scott Paper Co. will start to build a large distribution center at its Fort Edward, N. Y., plant.

The center is designed to improve service to Scott customers in New England and northern New York.

The new structure, costing about $1,000,000 including all handling and auxiliary equipment, is scheduled for completion late in 1961. Construction will be financed by a sale and lease-back arrangement.

The single-story building will provide about 130,000 square feet of floor space and will be connected by a 115-foot conveyor bridge to the plant.

Two railroad tracks will lead into the new distribution center, which can accommodate 14 freight cars for simultaneous loading. Three truck bays are planned, and that number can be expanded easily.

Consolidated Paper to Build Tennessee Plant

The Consolidated Paper Co. of Monroe, Mich., has announced the construction of a manufacturing plant containing about 40,000 square feet of floor space, at Pulaski Tenn. The new plant will be known as the Tennessee Valley Division of the Consolidated Paper Co., and cost of building is estimated at $250,000, with another $250,000 to be spent on modern machinery for the manufacture of corrugated shipping containers in all styles, grades and sizes in addition to corrugated counter and floor display stands.

The new facility will be a branch operation of Consolidated and will serve markets in Tennessee, Alabama, Georgia and Mississippi.

APPA Survey Shows 1960 Sales Up, Profits Down

According to a survey made by the American Paper and Pulp Ass'n., total sales of 83 pulp and paper companies in 1960 were 5.4 per cent greater than 1959 sales. Net income after taxes in 1960, however, was down 5.3 per cent from 1969. The 83 companies participating in this survey account for nearly half the total sales of the paper and allied products industry. The detailed survey results are sent to participating companies only.

Fibreboard Paper Products Plans New Roofing Plant

Fibreboard Paper Products Corp. has announced construction of a "modern, high speed" asphalt roofing plant near Martinez, Calif. The plant, to cost in excess of $1,500,000, will replace the company's old, less efficient roofing plant at Emeryville. The new facility is expected to be in operation by the end of the year producing a full line of asphalt shingles and roofing products.

SFI Mill at Snowflake Reaches Halfway Point

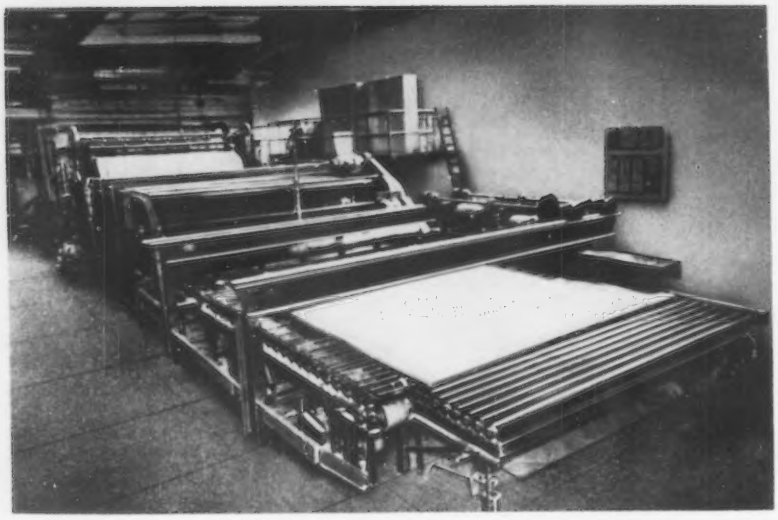
Work has reached the halfway point on Southwest Forest Industries' new $32,500,000 pulp and paper mill under construction 14 miles west of Snowflake. The new plant, the first of its kind in Arizona, will be named Snowflake Mills. It is expected to be in operation next November. When completed the plant will have an annual production capacity of 75,000 tons of newsprint and 65,000 tons of kraft linerboard.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending April 8, 1961, at 87.7 per cent, compared with 90.4 per cent, revised, for the preceding week. The ratio was 96.6 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending April 8, 1961, at 86 per cent, compared with 91 per cent for the preceding week and 94 per cent for the corresponding week a year ago.

(Detailed Statistics on page 54)



WHAT IS BELIEVED to be the largest binders board machine in the world, a 170-inch wet machine, complete with its own electronic control panel, was put into operation recently in the Jersey City plant of The Davey Co. A twin of the machine is expected to go into operation at The Davey Co., Aurora, Ill., plant before the end of 1961. The Davey Co. is also known for its development of mechanical take-offs and many other refinements in the binders board manufacturing industry.

SLA Paper & Textile Section to Meet

The Annual Luncheon Meeting of the Paper and Textile Section of the Special Libraries Ass'n. will be held Monday May 29 in the new Crown Zellerbach building in San Francisco during the Annual Convention of the association being held at the Sheraton-Palace Hotel, May 28-June 1. The luncheon address to be given by Eva Winter, Scott Paper Co. Research Division, Chester, Pa., will be followed by a tour of the building.

Institute for Industrial Engineers Planned at UW

Paper-industry leaders from Georgia to Ontario will gather at the University of Wisconsin May 2-3 for a program planned by Engineering Institutes of UW Extension.

The program, an institute for industrial engineers of the paper industry, is the first of its kind ever presented at the UW or elsewhere.

Robert A. Ratner, director of EI and coordinator of the two-day session, said the meeting is designed particularly for industrial engineers with supervisory responsibility.

Enrollment information concerning the May 2-3 institute may be obtained by writing Engineering Institutes, University Extension Division, 3030 Stadium, University of Wisconsin, Madison 6, Wis.

Cobalt Source Installed at Syracuse

The State University College of Forestry at Syracuse University, observing its 50th anniversary this year, announced that a new 1,000-curie, Cobalt-60 source for use in radiation research has just been installed at the college. The announcement was made by Dr. Hardy L. Shirley, dean of the college.

The Cobalt-60, a radioisotope capable of emitting an average of 1.25 Mev (million electron volts) gamma rays, will be used by the college as a source of energy in chemical reactions. The Cobalt-60 source, located in a concrete chamber adjacent to the basement of the Hugh P. Baker Memorial Wood Products Laboratory building, will be part of the Forest Chemistry Department facilities. Dr. Conrad Schuerch, chairman.

The design and construction of the gamma irradiation facility was under the supervision of Dr. John A. Meyer, assistant professor of radiochemistry. The cobalt source and associated equipment were obtained by the College of Forestry through a grant from the Atomic Energy Commission, Washington, D. C.

Under the AEC grant, Vivian Thomas Stannett, John A. Meyer and Michael M. Szwarc, who will be project directors, will direct research on ionic polymerization. Dr. Stannett is professor of polymer chemistry; Dr. Meyer, assistant professor of radiochemistry; and Dr. Szwarc is research professor of physical and polymer chemistry.

Joint Symposium on P&P Instrumentation Planned

The Instrument Society of America and the Technical Ass'n. of the Pulp and Paper Industry have planned a jointly sponsored Symposium on Instrumentation in the pulp and paper industry.

The Symposium will be held May 10-13 at the Northland Hotel in Green Bay, Wis. G. G. M. Eastwood, Kimberly-Clark Corp., Neenah, Wis., is general conference chairman. The technical program has been developed by J. W. Replogle, Jr., Panellit Service Corp., Skokie, Ill., for ISA; and by C. D. Lindwall, Marathon Division, American Can Co., Menasha, Wis., for TAPPI.

The technical program will consist of serveral panel discussions, a two-day Maintenance Clinic, a Management Workshop and tours to pulp and paper mills in the area and to the Institute of Paper Chemistry.

The keynote address will be given by Dr. Ward Harrison, president, Allied Paper Co., Kalamazoo, Mich., and the banquet speaker will be Dr. Lincoln R. Thiesmeyer, president, Pulp and Paper Research Institute of Canada, Montreal, Quebec, Canada.

Letter to the Editor

Dear Mr. Evans:

Your issue of March 20 quoted me as saying that the rate of fine paper operations is expected to be at 90 per cent capacity in 1961 as compared with 94 per cent in 1960, without further explanation. . . . An integral part of my statement gave the key to my prediction by pointing out that the anticipated decline in the production to capacity ratio in 1961 stemmed not from a projected drop in aggregate sales, but rather from an expansion in the industry's productive tools and equipment. . . .

I would not wish my fellow industry executives to think that I hold a gloomy view of the fine paper prospects, whereas on the contrary, I am very optimistic for our entire field of manufacture.

George R. Wallace, 3rd
President and Treasurer
Fitchburg Paper Co.

PAPER PEOPLE

J. T. O'Connell

W. P. Brown

Hudson Names Ind. Relations Director

J. T. O'Connell, former Under Secretary of Labor, has been appointed director of industrial relations for the Hudson Pulp & Paper Corp. Working out of Hudson's New York office, Mr. O'Connell in his newly created post, will be responsible for labor-management relations and all personnel-management activities.

As Under Secretary of Labor, a post he assumed in 1957, Mr. O'Connell, in the complex department's number two spot, acted both as general coordinator of the department's activities and as Acting Secretary in innumerable instances. Called to government service in recognition of his services as vice president of industrial relations for Publix Shirt Corp., a multi-plant operation employing some 2500 people, he held his government post during the Eisenhower administration. He is a graduate of Columbia, where he took his B.A. and B.S. and Civil Engineering degrees.

Assisting Mr. O'Connell in his new post at Hudson Pulp & Paper Corp. will be W. Perry Brown, for the last nine years associated with the Gardner Division of Diamond National Corp., most recently as its director of industrial relations. Mr. Brown will be assigned to Palatka, Fla.

Scott Elected To C-Z Vice Presidency

Frank A. Scott has been elected vice president, newsprint and printing paper sales, by the board of directors of Crown Zellerbach Corp., San Francisco.

A native of Vancouver, he started with Crown Zellerbach Canada, Ltd. (then Pacific Mills, Ltd.), 28 years ago. After serving as a sales representative, he was named assistant general sales manager for domestic papers in 1953.

In 1954, Mr. Scott was appointed general sales manager and in 1955, vice president, pulp and paper sales.

He moved to San Francisco in 1959 as assistant vice president for newsprint and printing paper sales with Crown Zellerbach Corp.

Novak Joins Fitchburg, Foscue and Risch Advance

Fitchburg Paper Co., Fitchburg, Mass., has named Edward S. Foscue director of field sales. He will supervise sales activities in the company's New York, Washington, Cincinnati, Chicago and New England offices. Moving up into the post vacated by Mr. Foscue is Martin D. Risch, who becomes director of market development. Mr. Risch, formerly a member of the sales staff, will serve as liaison between the research and new product development departments and the sales organization, providing technical guidance and support to the field in the introduction and merchandising of new products.

Joining the company as director of commercial development is Elliott Novak, who held a similar position with American Cyanamid. A graduate of the Harvard Business School and a chemical engineer, Mr. Novak's broad technical background includes an extensive series of projects involving wood pulps and paper technology.

Veteran Rayonier Executives Retire

George Cropper and John D. Sullivan, executives with Rayonier, Inc., for over 30 years, were given a testimonial luncheon by top company officers and fellow employes at the Rainier Club as they neared retirement this month.

Mr. Cropper, one-time resident manager of the Shelton and Grays Harbor divisions mills, has been an operating consultant to the chemical cellulose producer during recent years.

Mr. Sullivan has served the firm as purchasing agent for its Pacific Northwest operations with offices in Seattle, Wash., for many years.

It was announced at the luncheon that M. J. MacKinnon, an assistant purchasing agent for Rayonier, would succeed Mr. Sullivan, effective May 1. Mr. MacKinnon has been with the company since 1942.

Lincoln Advances at Hollingsworth & Vose

Hollingsworth & Vose Co., East Walpole, Mass., has announced the advancement of Albert L. Lincoln, Jr., to the position of sales manager.

Mr. Lincoln joined the sales force of Hollingsworth & Vose in March of 1953 and was promoted to assistant sales manager in July of 1954. Before joining the company he was with Tileston & Hollingsworth Co. and prior to that with Hollingsworth & Whitney Co. He is a graduate of Harvard University and served in the Navy during World War II.

Herrlinger Resigns from St. Regis Post

St. Regis Paper Co. announces the resignation of Paul W. Herrlinger as executive vice president of its Gummed Products Co. Division located at Troy, Ohio, effective April 1. He will continue to serve the division as a consultant.

For 35 years, Mr. Herrlinger has been closely associated in The Gummed Products Co. with his brother, Roth F. Herrlinger, president of the company.

A. M. Harper

Harper to Manage Fraser Atholville Pulp Mill

Fraser Companies, Ltd., has announced the appointment of A. M. Harper as mill manager of its Atholville pulp mill.

Following graduation from Mount Allison University in 1940, Mr. Harper joined the technical department of the company at Atholville, N. B. After serving in the Canadian Army, he rejoined the company as a research chemist. In 1949 he was transferred to the kraft mill at Newcastle, N. B., where he held various positions in operations prior to appointment as kraft mill superintendent. In 1957 he returned to Atholville as mill superintendent, the position he held prior to his present appointment as mill manager.

Canadian Keyes Fibre Names Cutting Director

On March 27 at the annual meeting of Canadian Keyes Fibre Co., Ltd., Hantsport, Nova Scotia, Ralph H. Cutting was elected a director. Mr. Cutting is president of Keyes Fibre Co., Waterville, Me.

Southland Paper Mills Elects Directors

Temple Webber and E. L. Kurth, Jr., were elected to the board of directors of Southland Paper Mills, Inc., Lufkin, Texas., at the annual stockholders meeting.

Mr. Webber fills a vacancy created by the resignation of Arthur Temple, Jr., and Mr. Kurth fills a vacancy created by the death of his father, E. L. Kurth, Sr.

The board of directors elected the following officers: R. W. Wortham, Jr., president and chairman of the board; George Clarke, vice president for mill operations; Ottis Lock, vice president; and C. W. Medford, secretary-treasurer.

Crown Zellerbach Executive Retires

Gerald E. Young, senior vice president and director of Crown Zellerbach Corp., has retired from active management of the company after 36 years.

Mr. Young joined Crown Willamette Paper Co., a predecessor of Crown Zellerbach, in Los Angeles. Following the 1928 merger of Crown Willamette and Zellerbach Corp., he became sales manager of Crown Zellerbach in 1930. He was elected a vice president in 1941 and a senior vice president and board member in 1959.

Mr. Young will remain a member of the board of directors and will serve the company as a consultant.

PCF Announces Retirement And Two Promotions

The Penobscot Chemical Fibre Co. of Great Works, Me., has announced the retirement of Robert E. Buck, chief engineer.

The firm also announced the appointments of Robert C. Lacadie as maintenance superintendent, and Raymond C. Humphrey as engineering superintendent.

Weyerhaeuser Names Research Director

J. D. Reagh, Jr., has been appointed as research director of Weyerhaeuser Co's pulp and paperboard Division, Tacoma, Wash.

Dr. Reagh joined Weyerhaeuser in 1950 as research supervisor at the Longview research center. Since 1954 he has been associate director of the division's research department at the company's Everett branch.

A native of Fairbanks, Alaska, Dr. Reagh studied at Stanford University, receiving a bachelor and master's degree in chemistry. He also holds a doctorate in physical chemistry from Cambridge University in England. Dr. Reagh succeeds Dr. Harold Bialkowsky who has resigned.

Usdam Elected President Of Rondout Corp.

David Usdan, of Great Neck, N. Y., has been elected president and general manager of Rondout Corp. The election took place at the annual stockholders meeting held on February 28.

Manufacturers of lightweight tissue and specialty papers, the company is located in Napanoch, N. Y.

A. S. Landers

Landers Joins TAPPI Staff

Albert S. Landers has joined the headquarters staff of the Technical Association of the Pulp and Paper Industry, according to a recent announcement by P. E. Nethercut, executive secretary. As supervisor of technical information Mr. Landers will direct the association's technical information program designed to expand the present TAPPI Data Sheets to cover all areas of pulping, papermaking, and converting technology. In this capacity he will report directly to A. J. Winchester, technical secretary.

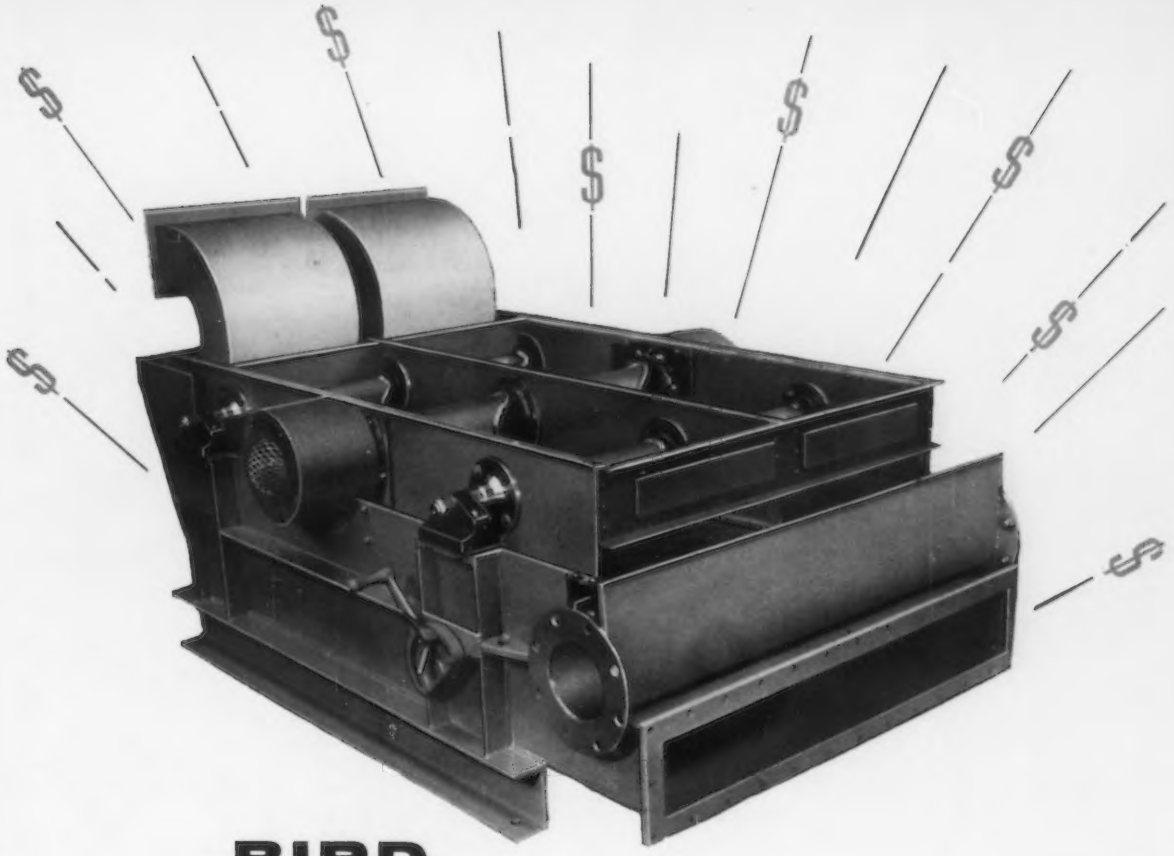
Mr. Landers has had broad experience in the paper and allied industries, since graduating from the Department of Forestry at the University of Maine in 1937. He has been associated with Scott Paper Co., Reuben H. Donnelley Corp., Day and Zimmerman, Inc., Eastwood-Nealley Corp., St. Regis Paper Co., Philadelphia Quartz Co., and Ron Deshazo and Co.

Brown Retiring from KVP Sutherland

Lloyd Dick has been appointed director of the industrial engineering department of the Sutherland Division, KVP Sutherland Paper Co., replacing George Brown, who will be retiring from the firm in August. Mr. Dick joined Sutherland in 1957 as supervisor of manufacturing standards.

Stecker Joins Downingtown As Packaging Product Mgr.

George Stecker has joined the Downingtown Paper Co. as product manager of the Packaging Division. His responsibilities include directing and developing the over-all marketing of Stretch-Packaging, the new



BIRD JONSSON SCREEN

PAID FOR ITSELF IN 30 DAYS

out of the savings in paper machine wires and felts alone

In the above case the Screen was handling excessively dirty waste stock at the rate of 90 tons a day.

Bird Jonsson Screens deliver up to 150 tons per day, depending on the kind of stock and its consistency, which can be relatively high. Loss of fibre in the rejects is exceedingly low. Power input is as low as .06 HP per ton. Space requirements are small.

This is a mighty useful Screen for knotting, screening brown stock ahead of the washers, coarse screening of board stocks and deink stocks, and tailings screening. May we supply layouts and estimates?

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND 4, OREGON • ATLANTA 9, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

packaging method now available through Downingtown. His work will include combined technical and sales service to customers.

As product manager, he will work closely with the Packaging Sales and Design departments and with those involved in the engineering development and manufacture of the special machine.

Mr. Stecker has held positions as field representative for Sylvania Electric Products and flight test engineer for the Pratt Whitney Aircraft Corp. He is a graduate of the U. S. Naval Academy and served in the U. S. Air Force as a pilot.

Hudson Announces Changes On Woodlands Staff

Hudson Pulp and Paper Co., Palatka, Fla., has named William D. Ticknor, III, assistant to the Woodlands Division manager. Mr. Ticknor, prior to joining the Hudson organization, was assistant to the chief forester of Scott Paper Co. in Winslow, Me.

Albert L. C. Nelson has joined Hudson as assistant to the wood procurement manager. Mr. Nelson has been a forest engineer with the Crossett Paper Co. in Crossett, Ark., and the Container Corp. in Brewton, Ala., and Circleville, Ohio.

Edwin S. Dew has been promoted to supervisor of all Hudson woodlands in Florida, replacing C. G. McKelvey, deceased. Mr. Dew, prior to joining Hudson in 1956, was assistant unit manager at St. Joe Paper Co., Port St. Joe, Fla.

Mead Fills New Corporate Purchasing Positions

Promotion of R. A. Bissmeyer and E. C. Becker to newly created staff positions in the Corporate Purchasing department at Chillicothe has been announced by The Mead Corp.

In these positions, Mr. Bissmeyer, as corporate coordinator of purchasing, and Mr. Becker will purchase materials and equipment used by Mead's widespread operating facilities.

Mr. Bissmeyer, a native of Cincinnati, joined Mead Containers in his home town as purchasing agent in 1958. He has held this position until this promotion.

Mr. Becker joined Mead in 1955 as a purchasing trainee. After his training, he was assigned to the Chillicothe Paper Co., a Mead subsidiary.

PJT NEWS OF CONVERTERS

S. L. Graham

T. F. Bensinger

Milprint Names Graham V-P and PR Director

S. Lyle Graham, director of personnel for Milprint, Inc., Milwaukee, Wis., has been appointed that firm's vice president, director of personnel and industrial relations. Milprint is said to be the world's largest printer and converter of flexible packaging.

In his position Mr. Graham will be responsible for the development of personnel policies and programs for each of Milprint's four plants across the country. He also will oversee the company's industrial relations policies.

Prior to joining Milprint in January 1950 as director of personnel, Mr. Graham was for five years director of personnel for Davison-Paxon Co., a division of R. H. Macy & Company in Atlanta, Ga. Previously, he was associated for ten years with Philip Morris, Inc. Milprint is a subsidiary of Philip Morris Inc.

Maryland Cup to Build Plant in Owings Mills

Maryland Cup Corp., Baltimore, Md., will build a manufacturing plant on a 24-acre tract in the Owings Mills section of Baltimore county on the main line of the Western Maryland Railway.

The plant, to manufacture paper cups and a diversity of paper containers, will include a central warehouse for those products as well as ice cream (baked) cups and other items manufactured by affiliated enterprises.

O-I Paper Products Names Bensinger to New Post

Thomas F. Bensinger, of Toledo, Ohio, has been named assistant regional sales manager for the Owens-Illinois Paper Products Division with headquarters in Memphis, Tenn.

Mr. Bensinger formerly was branch sales manager for the Libbey Glass Division of Owens-Illinois in Richmond, Va., Chicago and Miami. He joined the company in 1950 following graduation from Ohio Wesleyan University.

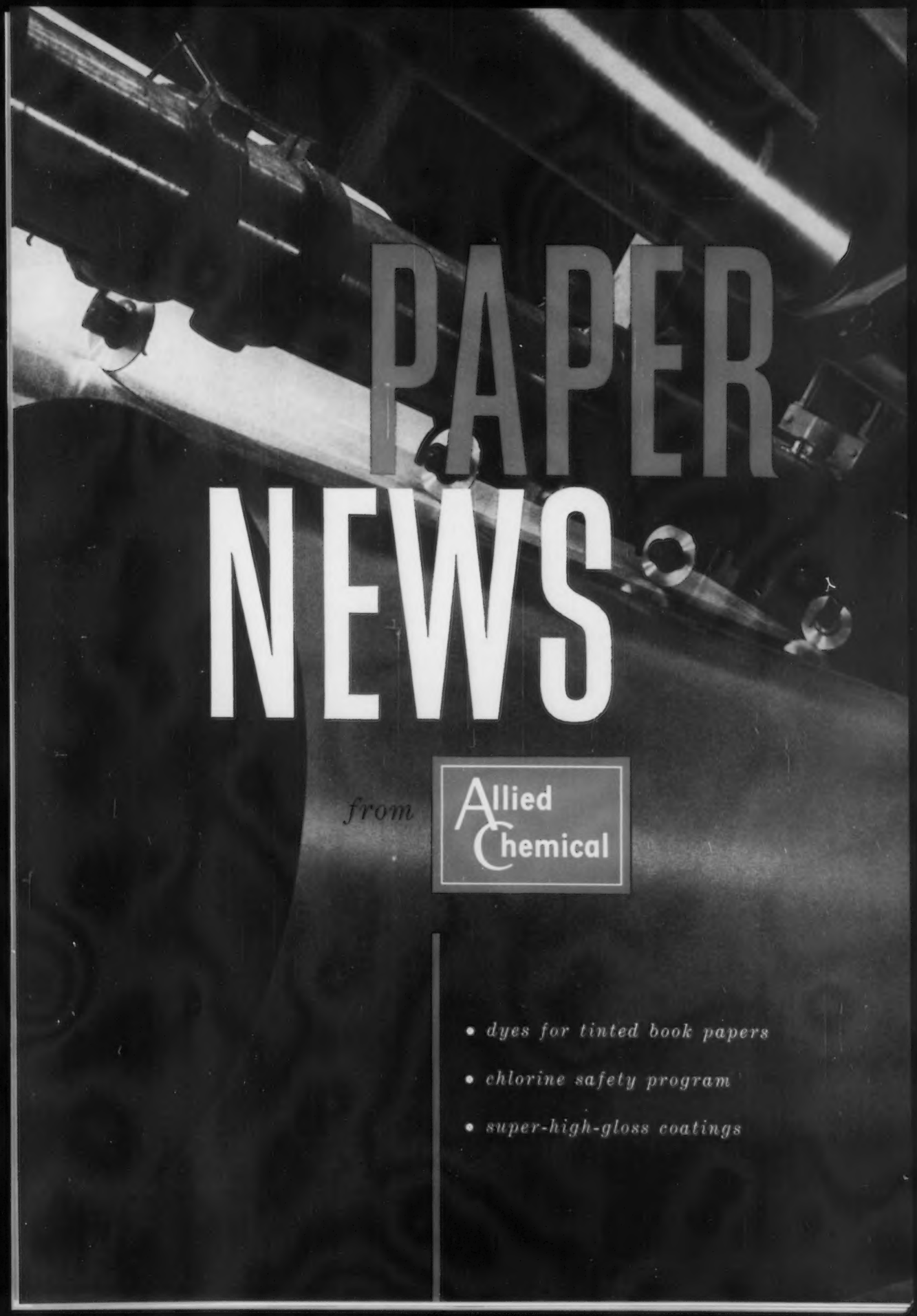
As assistant to James A. Cobb, regional sales manager, Mr. Bensinger will be responsible for the sales of corrugated shipping boxes in west Tennessee, Arkansas, Texas, Louisiana, Missouri and southern Illinois. Owens-Illinois operates box plants in the region at Dallas and Mercedes, Texas; Madison, Ill., and Kansas City, Mo., in addition to Memphis.

Ground Broken at Florence For Weyerhaeuser Plant

Ground has been broken for the Weyerhaeuser Co.'s new plant at Florence, Ala., according to W. G. Karran, resident manager for the company. Corrugated shipping containers will be manufactured in the plant from kraft linerboard produced by a Weyerhaeuser pulp and paper mill at Plymouth, N. C., he said.

The Florence plant will contain some 61,000 square feet on a 14-acre site within the Florence city limits. Completion of the plant and installa-

(Continued on page 19)


PAPER
NEWS
from
Allied
Chemical
• dyes for tinted book papers
• chlorine safety program
• super-high-gloss coatings

• *eye strain eased by new tinted book papers colored with Allied Chemical paper dyes*

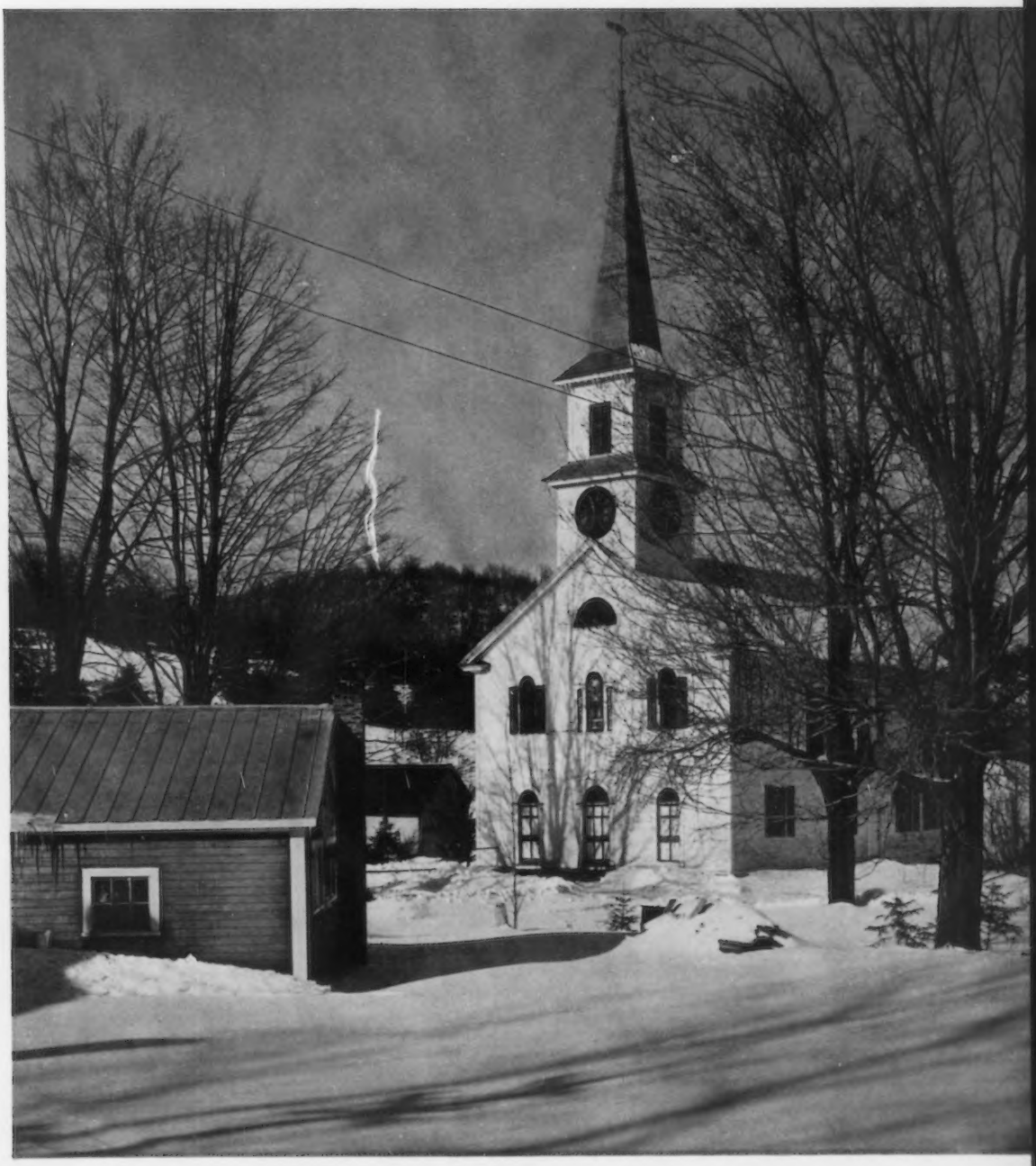
White paper reflects as much as 93-95% of the light—black ink 3%. New color-coordinated papers and inks, like those used in this insert, reflect only about 75% and 10% respectively—sufficient contrast for easy reading *without* fatigue, according to leading color experts.

Cost-conscious manufacturers of tinted papers are using National© "tailor-made" paper dyes. National Paper Dyes give you modern dyestuffs designed for continuous dyeing, dry application and other money-saving techniques. Why not let a National representative show how these dyes can save money for you?

■ **NATIONAL ANILINE DIVISION**

This entire insert is printed on 80 lb. Appleton Coated Impact Suntex; ink is blue. Yet, note how your eyes see "highlights" in this picture.

Four-color process? Not at all—this full-color effect is achieved with just two colors, red and blue, printed on Appleton Coated Impact Suntex. Combinations of two carefully selected colored inks will produce similar results on various Impact tinted papers.



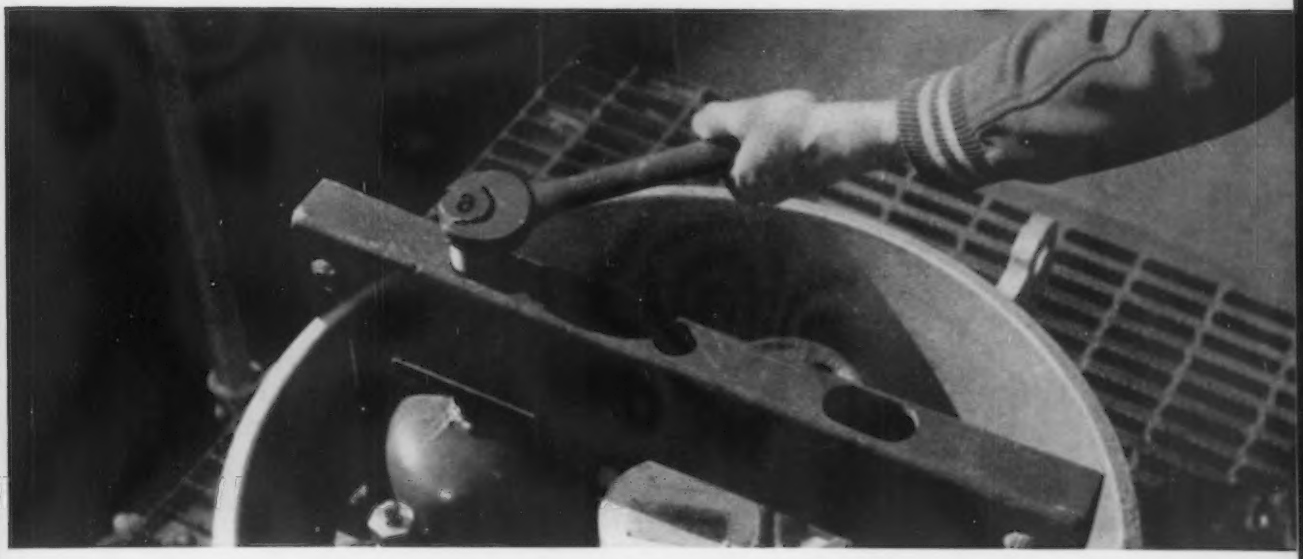
• *how Solvay helps customers with complete chlori*

Safety posters list precautions to be taken in handling chlorine and procedure in case of accidents. Safety manuals, films and educational literature are also provided.

Solvay provides consultation on chlorine safety facilities and procedures. Here, technical service representative explains use and care of protective clothing.

fety program

Employees clear "danger" area in emergency drill. Safety training of personnel is another important facet of Solvay's integrated safety program for customers.

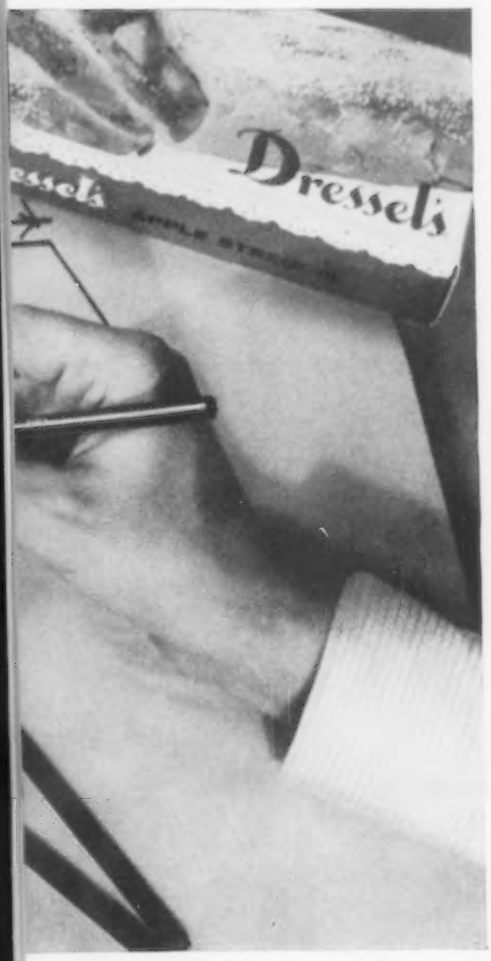


Equipment from a Solvay Chlorine Emergency Kit being used to stop leakage in tank car dome. Similar kits are available for 150-lb. cylinders and one-ton containers.

Photos on this page show several phases of a typical program in operation at a customer's plant. If you are a user of chlorine, the same service is available to you. Ask for information. ■ **SOLVAY PROCESS DIVISION**

• *new super-high-glo*

perboard coatings now make overwrapping unnecessary



A new heat treatment using A-C Polyethylene marketed by Plastics Division imparts super high gloss to waxed paperboard...lets you dispense with overwrapping in many cases. It's ideal for frozen food and ice cream packages...butter and oleo...bread wrappers.

You can use this new technique while realizing all the advantages of A-C Polyethylene wax coatings: greater resistance to grease, moisture, scuffing and abrasion...smooth plastic-like feel...positive lock at freezing temperatures... brighter printing effects.

For details on super high gloss with A-C Polyethylene, write us.

■ **PLASTICS DIVISION**

• *basic to America's progress*

Allied Chemical

For more information, write
Allied Chemical Corporation,
61 Broadway, New York 6, New York.

In Canada:
Allied Chemical Canada, Ltd.,
1450 City Councillors Street, Montreal

• *principal products for the paper industry*

BARRETT DIVISION—BARRETT building materials.

GENERAL CHEMICAL DIVISION—Aluminum sulfate; Glauber's salt; Salt cake; Sodium silicate; Sulfuric acid.

NATIONAL ANILINE DIVISION—Adipic acid; CAPROLAN nylon fiber; Fumaric acid; HARMON pigments for printing inks; Maleic anhydride; NACCONATE diisocyanates (in coatings); NACCONOL detergents and emulsifiers; NACCOTAN dispersing agent and mordant; NADONE cyclohexanone; NATIONAL paper dyes; Phthalic anhydride.

NITROGEN DIVISION—Ammonia liquor; Anhydrous ammonia; Formaldehyde; Methanol; Polyethylene glycol; Triethanolamine; U. F. Concentrate-85; Urea.

PLASTICS DIVISION—A-C polyethylenes—Emulsifiable for paper size or coating; hot melt low molecular weight for coatings; CUMAR resins; ELASTEX plasticizers; Fiber pitch; PLASKON urea resins, Solvents, Tar acids.

SEMET-SOLVAY DIVISION — Coke and by-products; WILPUTTE by-product coke ovens and coal chemicals plants and engineering services.

SOLVAY PROCESS DIVISION — Ammonium bicarbonate; Calcium chloride; Caustic soda; Chlorine; Hydrogen peroxide; MUTUAL salt cake; Soda ash.

INTERNATIONAL DIVISION—Marketing Allied Chemical products abroad.

Items above appearing in light face capital letters are Allied Chemical trademarks.

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Nearly 40 years ago, Albany Felt research technicians started treating certain felts with chemicals to improve felt quality and increase the production of paper.

Chemical treatments are now providing faster start-ups, improving finish, eliminating bacteria, increasing drainage and prolonging felt life.

Could our chemical treatments help you?

ALBANY FELT COMPANY
ALBANY, N.Y.

AF

Dedicated To Paper Industry Progress

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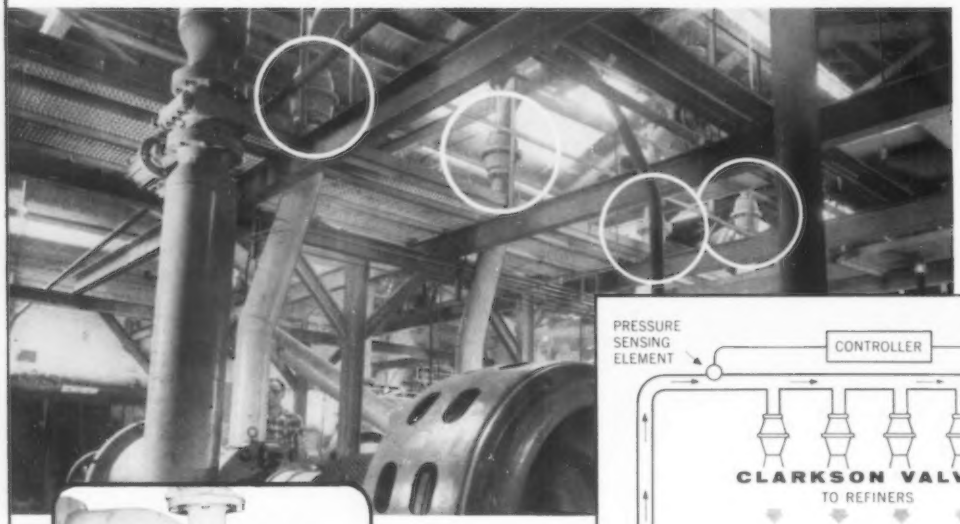
Cowansville, Quebec Cuautitlan, Mexico

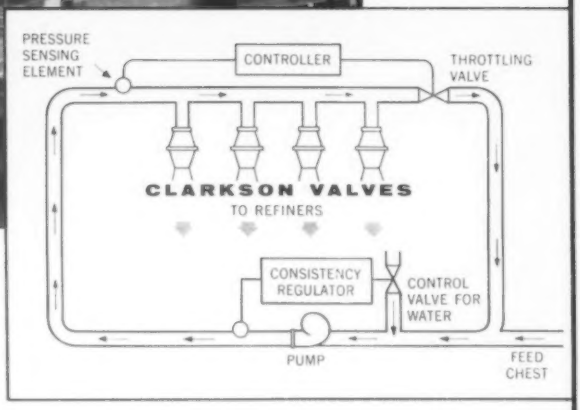
TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER

OPERATIONAL DATA ON CLARKSON FLO-CONTROL VALVES

...another case in point!

REFINER PRODUCTION INCREASED AT FIBREBOARD PRODUCTS USING CLARKSON VALVES





TYPICAL REFINER LOOP AT FIBERBOARD, STOCKTON, CALIFORNIA
Pressure is controlled by throttling return to pump. Head effect is eliminated by staggering elevation of each Clarkson Valve.

OPEN valve permits unrestricted flow.

CLOSED valve maintains round, centered aperture through 75% of full control range.

Maximum benefits from the pressure loop system in paper pulp processing are attained at Fibreboard Products by use of Clarkson Valves. Accurately controlling pulp flow in the manner of a variable venturi with smooth entrance and exit areas, Clarkson Valves eliminate pulp build up behind valves and corrosion problems inherent in conventional-design valves. Maximum production is easily maintained by remote control of the valves from a convenient station at the refiner itself.

For detailed description of Fibreboard application of Clarkson Valves, write for Bulletin 2.4-1.

THE CLARKSON COMPANY

735 LOMA VERDE AVENUE • PALO ALTO, CALIFORNIA

OTHER PRODUCTS: PROPORTIONING PUMPS • FEEDERS

News of Converters

(Continued from page 18)

tion of equipment is expected by October 1.

Mr. Karran said plans are to construct two more stages to the plant in Florence which will ultimately reach 161,000 square feet.

Zellerbach to Build New Headquarters

The Zellerbach Paper Co., Portland, Ore., has announced the award of contracts for construction of a 200,000 square foot administrative headquarters and warehouse on a 17.6 acre tract at NE 92nd Drive and Columbia Boulevard in Northeast Portland.

V. E. McIntyre, the division manager, said site clearance is now under way and construction on the new building will begin on May 1 and that completion is tentatively scheduled for December 1. The general contract was awarded to W. C. Sivers Co., Portland.

The new building will house 132 people employed in the Portland Division's sales, accounting, merchandising and distribution departments.

One of the unusual features of the new building will be an infloor chainline merchandising handling system. This unit will be a half mile in length, and will automatically deliver all orders to the shipping dock on wheeled trucks.

This new Zellerbach building will permit consolidation of different sales offices and distribution operations which are currently housed in separate locations. It will also provide more modern storage space and equipment to allow for faster processing of orders.

Labelon Moves To New Location

Labelon Tape Co., now a division of Labelon Corp., has recently transferred its manufacturing facilities and headquarters to 10 Chapin Street, Canandaigua, N. Y., a city some 25 miles southeast of Rochester, where it was formerly located.

Labelon manufactures pressure-sensitive tapes, labels, index tabs, including the exclusive "Write-On-It" tapes for which it is prominently noted. The new building location consists of four floors with a total overall of over 80,000 square feet of space.

K. M. Lewis

Con Can Bondware Div. Names Chicago Plant Mgr.

K. M. Lewis has become manager of the Chicago paper products plant of the Bondware Division, Continental Can Co. Formerly assistant plant manager at this location, Mr. Lewis replaces R. Drotziger, who retired in February.

The Chicago plant is located at 4711 West Foster Avenue and manufactures single wrap cold drink cups, cone cups and compatible lids, for water, ice cream, sundaes and sodas.

C. J. Dwyer

Chase Bag Names Dwyer General Traffic Manager

The Chase Bag Co. has announced the appointment of C. J. Dwyer as general traffic manager. Formerly assistant to the general traffic manager, Mr. Dwyer continues to maintain his offices at Chase traffic department headquarters, located at 309 W. Jackson Boulevard, Chicago.

He joined Chase in 1946, and before then was with the Kraft Foods Co. He is a graduate of Northwestern University and The College of Advanced Traffic.

The Chase Bag Co. manufactures and markets a diversity of flexible-packaging products.

Fowler Succeeds Leyden At Hampden Glazed Pres.

Frank N. Fowler has been elected president and treasurer of the Hampden Glazed Paper and Card Co. He succeeds James A. Leyden of Longmeadow who has retired after 46 years' association with the firm. Mr. Leyden was elected chairman of the board.

Mr. Leyden also stepped down as president of Hampden Glazed's subsidiary, Hampden Middlesex, which is engaged in the sale of Hampden Glazed's products.

Robert C. Adams was reelected vice president of Hampden Glazed and elected treasurer of Hampden-Middlesex; Fowler was reelected treasurer of both the firm and its subsidiary; and William B. Snow was elected vice president of Hampden-Middlesex.

Haley Succeeds Dalstrom At Graham Paper

Edwin Dalstrom retired April 15 as manager of the Graham Paper Co.'s Memphis office which he has headed except for a brief period since it was opened in 1927.

Mr. Dalstrom will be succeeded by L. A. Haley, who has been assistant manager since 1928.

Stone Elected President of Newly Formed Association

Jerome H. Stone, executive vice president, Stone Container Corp., Chicago, and president of the Fibre Box Assn., has been elected president of the newly formed International Corrugated Case Ass'n. at that group's organizational meeting in Paris, France, on March 17.

Representatives of corrugated box associations from 19 nations whose members produce approximately 80 per cent of the world production of corrugated shipping cases were present at the meeting. Other elected officers of the new association were Dr. W. F. Klingele, president, Federation Europeenne des Fabricants de Carton Ondule (FEFCO), Heidelberg, Germany, as vice president; R. du Boucheron, secretary delegate general, FEFCO, Paris, France, as executive secretary for Europe; and Albert W. Luhrs, executive manager, Fibre Box Assn., Chicago, Ill., as executive secretary, other nations.

The next meeting of the International Corrugated Case Ass'n. will be held in New York City in the fall of 1961.

Modern Water Treatment Plant Provides Process Water at Low Cost

Using the efficient plant at Continental Can's new Augusta, Ga., mill as a model, this article describes how process water can be prepared for pulp and paper mills at minimum capital investment.

C. T. Wise,
Vice President,
J. E. Sirrine Co.

The process water treatment plant for the new kraft board mill of the Robert Gair Paper Products Group, Continental Can Co., located on the Savannah River about 15 miles south of Augusta, Ga., has been in operation at approximate rated capacity since October 1960. The raw water facilities, including a river pumping station, have a capacity of 26 m.g.d. The water treatment system, including coagulation and rapid sand gravity filtration, has a rated capacity of 22 m.g.d.

The capital investment for the raw water facilities was approximately $335,000, or about $13,000 per m.g.d. capacity. The capital investment for the water treatment plant was approximately $1,410,000, or about $64,000 per m.g.d. capacity. The chemical costs are averaging less than $5 per m.g.d. of treated water produced. The mill is able to operate the water supply facilities with one operator per shift. The resulting quality of the process water is better than the standards required for the production of high brightness paper as manufactured by this mill. Tests and trial runs indicate that the plant has a reserve capacity and is capable of producing a satisfactory water at a rate substantially in excess of the rated capacity. That the initial operating results are encouraging is evidenced in the accompanying Table I.

Raw Water Supply

The raw water pumping station is located in a bluff which is approximately 4,000 feet from the river. The water is conveyed in a canal to the intake. The pumping station includes a coarse bar rack, a 10-ft.-wide traveling water screen with space for a future screen, three vertical turbine-type pumps of which one is a spare, and space for two future pumps. The use of the vertical turbine-type pumps allowed a more compact, lower cost pit. No housing is provided for the vertical motors located on the top of the pit. Means of agitation of the sediment in the bottom of the pit and means of blowing off this sediment are provided. Means of remotely controlling the raw water pumps from the filter plant are provided. The raw water is pumped through a 36-inch steel main a distance of about 1500 feet to the treatment plant. The relative position of the treatment plant's components is depicted in the accompanying schematic diagram.

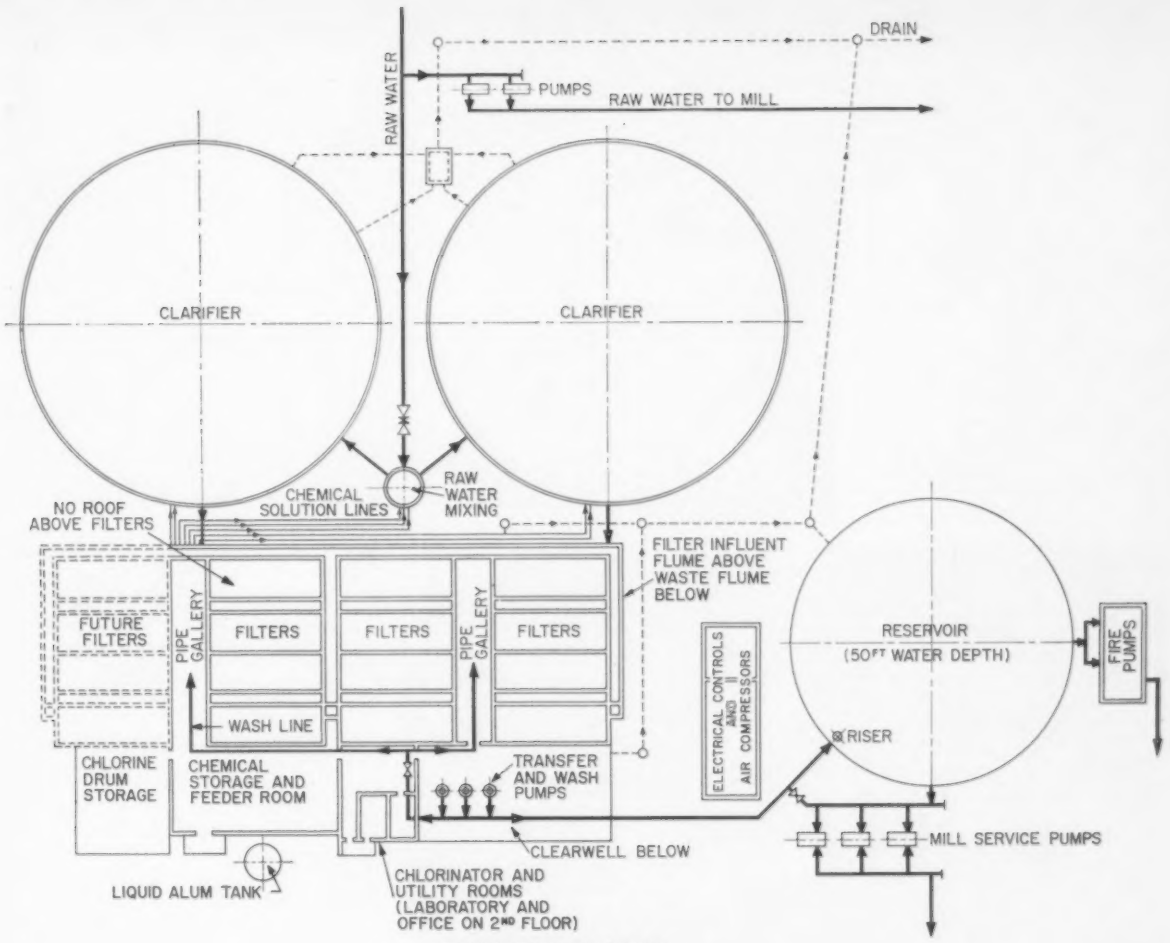
Chemical Treatment

The chemical treatment facilities for coagulation include a liquid alum storage tank, two daily storage tanks, and two metering pumps. One of these pumps is equipped for automatic stroke positioning and is actuated by the pH of the mixed water. The other alum pump is manually positioned and is a spare. There are two points of feed of alum, one in the raw water mixing tank, and the alternate point in the flocculation zone of the clarifier. Hydrated lime is used as the alkaline coagulant and is fed by a gravimetric dry feeder with a pump discharging the milk-

TABLE I

SAMPLE ANALYSES OF THE RAW AND FINISHED WATER FROM THE NEW TREATMENT PLANT.

	One Sample of Savannah River Raw Water	One Sample of Finished Water At Filter Plant
Calcium as $CaCO_3$	6	17
Magnesium as $CaCO_3$	5	5
Sodium as $CaCO_3$	13	13
Bicarbonate HCO_3 as $CaCO_3$	13	19
Carbonate as $CaCO_3$	0	0
Hydroxide as $CaCO_3$	0	0
Chlorides as $CaCO_3$	7	8
Sulfates as $CaCO_3$	4	8
Total Hardness	11	22
Alkalinity Methyl Orange	13	19
Alkalinity Phenolphthalein	0	0
pH	6.6	7.1
Total Solids (By Evaporation)	54	62
Free Carbon Dioxide	6	4
Silica	10	10
Total Iron	0.04	0.02
Manganese	0.0	0.0
Aluminum	Trace	0.02
Turbidity	30	0.0
Color	15	0.0
Expected Turbidity Range of Raw Water	10 to 200 p.p.m.	
Expected Color Range of Raw Water	10 to 100 p.p.m.	



SCHEMATIC DIAGRAM
22 M.G.D. WATER TREATMENT PLANT

of-lime to the raw water mixing tank.

The hydrated lime is stored in bags in the chemical storage room. A dilution tank and a metering pump are provided for the emergency feed of a coagulant aid such as one of the polyelectrolites. The point of feed of this coagulant aid is in the flocculation zone of the clarifier. Chlorine feeders are provided for both pre-chlorination and post-chlorination. The points of feed of the chlorine solution are the raw water mixing tank and the filtered water mixing tank.

The chlorine is stored in one-ton drums under a shed roof adjacent to the chemical feed room. The pH of the water after filtration is adjusted to control corrosion by the addition of hydrated lime fed by a gravimetric dry feeder. The rate of this feed is controlled automatically by the pH of the finished process water. This milk of lime is discharged into the filtered water mixing tank.

The normally required dosage of alum so far has been 8 to 10 parts per million. Generally no lime has been needed for coagulation. The use of the coagulant aid has not yet been required. When the turbidity and color in the raw water increase, heavier dosages of coagulants will be necessary. The chlorine dosage has been 3 to 4 p.p.m. The average feed of lime for pH correction of the filtered water has been 10 to 15 p.p.m.

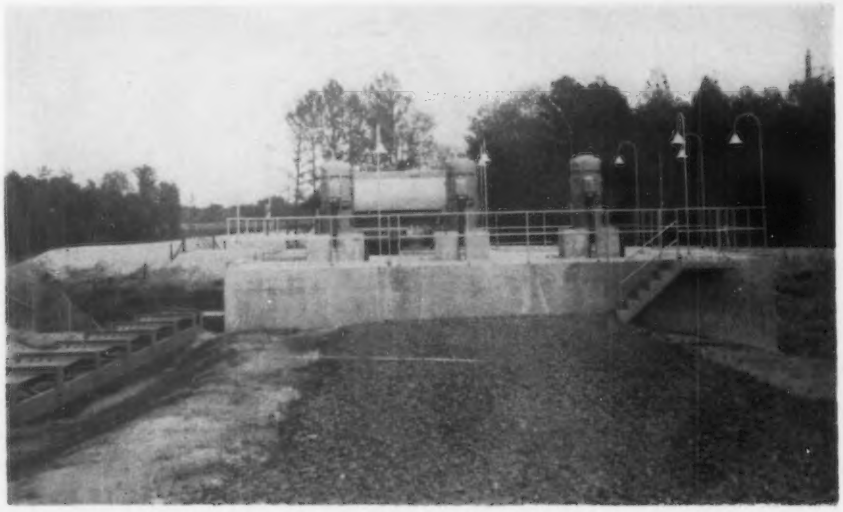
The concrete raw water mixing tank is a separate basin with a detention of approximately one minute at the rated capacity. A 15 h.p. flash mix agitator is provided. The water inlet is at the bottom and the outlet is near the top of this tank. This separate mixing basin provides means of thoroughly disbursing the chemicals before the water enters the coagulation basin. It also provides flexibility in the selection of the points of feed of the chemicals in order to obtain the maximum efficiency in the use of the chemicals.

Coagulation and Sedimentation

Two 105 ft. diameter, concrete, up-flow, sludge contact-type clarifiers are used. The mixed water enters the center coagulation or flocculation zone where a low speed agitator imparts a slow rolling and recirculation action to the water in this compartment. The detention in this coagulation zone is about 25 minutes at the designed rate. The drive for the agitator is multi-speed to allow the selection of the proper speed for the best floc formation. For the water encountered so far, a slow speed and a gentle rolling action have been found to be the most effective. When the turbidity of the raw water increases, a higher speed may be necessary.

The sedimentation compartment of the clarifier has a rise rate of about one gallon per minute per square foot of area, and a detention of about two hours and 15 minutes. The floc settles to the bottom in this compartment where it is raked to the center

The compact raw water pumping station houses three vertical pumps and one traveling screen with space for two future pumps and one future screen.



The raw water enters the mixing tank where the coagulants are added. The mixed water is coagulated and settled in the circular clarifiers then conveyed to the filter bed. The beds and the operating consoles are in the open.

hopper by a sludge scraper and automatically blown off to the sewer. The clarified water flows to the top where it is collected in 14 radial collection troughs in each unit. The water enters the troughs through orifices in each side of the trough. The spacing of the troughs and the size and spacing of the orifices were carefully designed to provide equal distribution of the upward velocity of the water over the entire area of the clarifier. The level of the water in the troughs is maintained to submerge the orifices in order to further control the distribution of the vertical rise. The submerged orifices serve further to minimize the breaking up of any floc carry-over and to reduce the short circuiting of flow in the basins.

The operation of these units to date has indicated that the best results are obtained by carrying a minimum sludge level in the clarifier. If the sludge level is maintained too high, boil-ups and floc carry-over will occur. When the turbidity of the raw water increases, a deeper sludge contact zone may then provide more effective results. Generally the turbidity and color of the settled water from these units have been less than 5 parts per million.

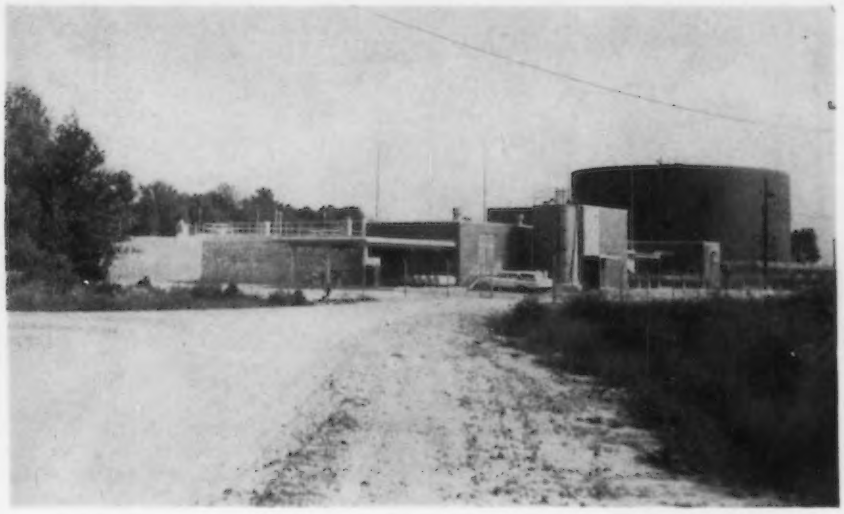
Filtration

The filtration system consists of 6 twin-filters, with each half unit 13 ft. x 40 ft. These large beds provide an economical construction and at the same time maintain adequate flexibility of operation. Only one-half of a twin bed is washed at one time. At the plant design rate of 22 m.g.d., the filtration rate is 2.5 g.p.m. per square foot of bed. However, the hydraulic capacity of the bed and the auxiliaries allows a filter rate of 4 g.p.m. per square foot of bed. The filter media includes a 30-inch depth of silica sand with an effective size of approximately 0.45 millimeters, and a uniformity coefficient of less than 1.5. A 12-inch deep bed of graded gravel is supported on a Wheeler Bottom under-drain system. The wash troughs are constructed of poured-in-place concrete. The backwash facilities provide an available wash rate of the equivalent of 36 inches per minute rise. Around the periphery of the filter bed area is a double-decked flume, the top compartment used for the filter influent and the bottom compartment used for the waste water. The entire filter bed area including the operating deck above the pipe galleries is in the open.

The operation of the filtration system has produced excellent results. The turbidity and color of the treated water have normally been 0 to a trace. Trial runs have indicated that a satisfactory quality of water can be produced at a rate substantially in excess of the design rate. The normal backwash rate has ranged between the equivalent rise rates of 24 inches and 30 inches per minute. The filter runs between backwashes have averaged better than 60 hours.

Process Water Storage and Pumping

The process water storage and pumping system includes a concrete clearwell of a capacity of about 300,000 gallons, three combination transfer-wash pumps of which one is a spare, a covered steel reservoir of a capacity of about 3.0 million gallons of which 0.5 million gallons are reserved for fire protection water, and three mill service pumps of which one is a spare. The transfer pumps



The 22 m.g.d. water treatment plant with the clarifiers and filters in the background and the headhouse and storage facilities in the foreground.

are vertical turbine-type with the motors in the open. The use of vertical turbine pumps allows a more economical clearwell construction and eliminates the pump priming problem. The pumping head as established for these pumps allows an efficient performance for both transfer and filter backwash services. The water level in the clearwell is maintained within predetermined limits by the automatic control of flows from the filters and to the storage reservoir. Because of the available flexibility of operation of the water treatment plant and the available standby units of equipment, the water storage as provided appears to be adequate for the peak demands of the mill and for any normal malfunctioning of equipment that may occur.

Instrumentation

Instrumentation for operator efficiency was the controlling design factor. The resulting semi-automatic plant requires only one operator per shift, and periodic supervision by a member of the staff of the mill technical director.

A central operating panel houses all common instrumentation, including recorder-controllers for raw water flow, wash water flow, clearwell level, reservoir level, mixed water pH and finished water pH. Recorders are provided for mill raw water flow, mill service water flow, clarifier level, and mill service pressure. This panel is provided with an electrical control center for all system pumps and an alarm annunciator which provides visual and audible alarm of fourteen major points of interest.

One outside filter operating console is installed for each of the six filters. Each console is provided with recorders for loss-in-head and filtration rate-of-flow, indicators for filtration rate of flow, and remote-manual rate set point adjustments for each half-filter. In addition, each is provided with an indicator for back wash rate of flow, air switches for remote operation of all filter valves, and valve position indicators.

Other Water Supply Facilities

Other water supply facilities which influenced the design of the process water treatment plant are the raw water supply to the mill, a potable water supply, the fire protection water system, and the boiler make-up water treatment. The raw water supply, used primarily for evaporator condensing, is pumped by booster pumps taking suction from the raw water main before the water enters the rate controller to the filter plant. The potable water is a separate well supply with storage provided in a separate compartment in the top of the fire protection elevated sprinkler tank. The separation of the process and potable water eliminates the necessity of maintaining potable water standards for the entire treated water supply, thus providing more flexibility and economy in the operation of the process water treatment plant. The required storage of water for fire protection is provided in the bottom of the 3.0 million gallon reservoir. This is accomplished by installing automatic pump cutouts and a baffle around the suction of the mill service pumps, thus restricting the draw-down of water in the reservoir by these pumps. The boiler makeup water is further treated in a two-bed demineralization system.

Acknowledgments

The designers of this water treatment plant appreciate the help and suggestions during the development of the design by the members of the staff of Continental Can Co., the contractors, and the equipment manufacturers. Following is a list of the major contractors and equipment suppliers.

PRINCIPAL EQUIPMENT SUPPLIERS

General Contractor	Daniel Construction Co.
Filter Plant Mechanical Contractor	Roberts Filter Manufacturing Co.
Traveling Screen	Link Belt Co.
Water Pumps	Peerless Pump Co.
Motors	General Electric Co.
Clarifiers	Graver Water Conditioning Co.
Dry Chemical Feeders	Omega Machine Co.
Chemical Metering Pumps	Milton-Roy Co.
Instrumentation	Foxboro Co.
Raw Water Mixer	Philadelphia Gear Works
Filtered Water Mixer and Portable Mixers	Mixing Equipment Co.
Chlorinators	Wallace & Tiernan, Inc.
Reservoir	Chicago Bridge & Iron Co.
Liquid Alum Tank	Dixie Steel & Supply Co.
Air Compressors	Ingersoll-Rand

Materials Handling—III

Keep Unloading and Storage of Pulp Bales in Proper Perspective

Can special equipment for handling pulp bales be justified for your mill? Or should you consider careful integration of these facilities with overall material handling operations?

G. E. Stefonik,
Materials Handling Manager,
Rhinelander Paper Co.,
Rhinelander, Wis.

The unloading and warehousing of pulp bales is but one phase of most paper mill materials handling operations. Therefore, while considering effective methods of handling bales, the operation must be kept in proper perspective. That is, what portion of the total man-hours spent each day, week and month handling materials does this operation require and what portion will it require utilizing an improved method. Where the operation does require a major portion of the materials handling man-hours and will continue to do so utilizing improved methods, special equipment and facilities can be justified. Where this is not true, careful integration of equipment and facilities must be considered.

Soon after World War II, the Rhinelander Paper Co., division of St. Regis, found, as did many other companies, that expansion during the war years, current expansion, and rising labor costs were creating costly materials handling operations. One of the major cost areas was the unloading and warehousing of purchased bales of pulp. Increased production capacity had been, and was still, increasing the demands for purchased pulp to supplement the company's own pulp production.

Pulp Handling Reviewed

At that time pulp was handled in the following manner. One or two men worked in the box car taking down bales. Two or three men, using two-wheeled hand trucks, hauled the pulp into the warehouse and dumped the bales on a portable electric elevator. One or two men, using the portable elevator, lifted the bales to the desired height where they slid the bale off of the elevator platform onto the pile. The average carload of pulp required 30 man-hours to unload and warehouse. The average cost per gross ton handled was 92 cents. This cost per ton considered actual direct labor only.

Before making any major changes in the bale handling methods, a review of the overall operation was made. Consideration was given to the types of material handled, their physical characteristics, tonnage handled, warehouse space required, warehouse space available, and types of handling equipment available. Estimates were made on the effect of various methods on the various work loads. The review indicated that general purpose equipment and facilities were required for the overall operation and that special equipment could not be justified for handling pulp bales. Therefore, 4000 pound capacity fork trucks equipped with an unloader attachment were selected as one of the basic materials handling tools.

Special Fork Truck Attachment

The rated capacity of these trucks is reduced to 3,400 pound capacity at 24 inches because of the unloader attachment selected for handling pulp. The unloader attachment is required for handling unwrapped wire-tied bales of 50 to 54 per cent A.D. pulp and for handling some grades of non-baled lap stock received. Bales of pulp in the 50 to 54 per cent A.D. category cannot be wire-tied securely enough to hold their shape during shipment and handling. The unloader attachment makes it possible to straighten the piles of pulp taken from the car and place them in stable piles in the warehouse. At this moisture content these bales also tend to stick to the forks of the truck, making it very difficult to withdraw the forks from under the load. The attachment solves this problem. For wrapped baled pulp 75 per cent A.D., and above, the attachment is not required. However, with the attachment it is easier to make straighter, safer piles of bales with less effort on the part of the fork truck operator. Attention to the effort required on the part of the operator usually pays off in reduced handling time and cost.

The unloader attachment can prove to be a maintenance headache, however, if the operators are not adequately trained in its use. Without adequate training the fork truck operators tend to use the attachment like a battering ram. This causes bent pusher arms, split hydraulic lines, connector failure, broken hydraulic cylinders, and downtime which are all costly. Abuse of the attachment can add 25 to 30 per cent to the maintenance cost of the fork truck. If the operator has been trained properly, the attachment adds about 8 to 13 per cent to the maintenance cost of the fork truck.

For handling pulp bales at the Rhinelander Paper Co., the 3200 pound capacity fork truck has proved to be the most advantageous. The truck not only provides the capacity required for transporting and high stacking pulp, but has the reserve necessary to break out the doorway piles of pulp. To get the first tier out of the doorway, and subsequent first tiers out of each row across the

Unloader attachment for fork trucks makes straighter, more stable piles of bales, pays off in reduced handling time and costs.

Method of stacking. Each top pile of bales rests on one-half of each of two bottom piles.

car, the load, most of the time, must be worked up and down in a sawing manner to free the tier from the other tiers and to work the load out of the car.

Stability Needed for High Stacking

The fork trucks are equipped with 32 inch fully tapered and polished pulp forks. The 32 inch pulp fork on an average holds the full length of the pulp bale furnishing the stability required for ramp operation, for travel and braking, and for high stacking. The 32 inch forks are also sufficiently long enough to hold the tier of bales while the operator works the first load out of the doorway of the box car. They are not too long, however, to hinder seriously the maneuvering of the fork truck which is necessary to secure the first bales on either side of the doorway of the car.

Initially shorter forks were used because they offered greater maneuverability in handling the doorway bales of pulp and in stacking the bales of pulp. The shorter fork permitted approximately one fourth of the bottom surface of the bale to come in contact with the floor, or other stacked bales, as the load was discharged. The one fourth surface contact created enough drag (friction) so that in most cases the forks could be withdrawn from under the high A.D. bales without using the unloader attachment or jerking the truck. The longer fork offers greater stability, however, and this factor determined its selection.

Overhead guards are standard equipment on all pulp handling fork trucks. Proper training, care on the part of the operator, and other safety

Excellent high stacking characteristics of uniform, flat surfaced, rectangular bales are shown here.

precautions cannot guarantee that a 500 pound bale of pulp will not topple off the top of a load onto an operator. This is particularly true where the operators handle a number of different types of pulp having different bale characteristics.

Bale Handling Costs Cut

Utilizing the fork trucks described above, the cost of unloading and warehousing baled pulp was reduced from 92 cents per gross ton handled, to an average of 28 cents per ton in less than one year. The current average cost is 41 cents per gross ton based on a $3.52 hourly fork truck rate. The fork truck rate includes the operators average wage of $2.28 per hour, all fringe benefits, insurance costs, depreciation on buildings and equipment, gas, grease and oil, repair and maintenance on the fork truck and other overhead. It is also a reflection of the travel distance in the two warehouses utilized for storing pulp. At the main mill travel distance for pulp unloading varies from 50 to 150 feet. At a reserve warehouse this distance is 200 to 400 feet.

During recent years consideration has been given to two variations of the clamp attachment used by other mills for handling pulp bales. These are the standard bale clamp, most commonly used for handling cotton, rag and waste bales, and the clamp attachment equipped with fully tapered and polished pulp forks. The pulp forks on the last attachment have short spikes on the inside edge of the forks for holding the pulp bale. Clamping of the bales has a time advantage over forcing the forks under bales and retracting from under the bales. Because they do not fit into the overall pulp handling needs satisfactorily, neither of these clamps is utilized by the Rhinelander Paper Co.

Height of Bales in Car

In addition to the basic handling method selected for handling baled pulp, there are a number of areas in which attention to detail can increase handling safety and affect handling

costs. Attention to detail can very well start with the supplier of pulp. Uniform bales, compressed to a flat surfaced rectangle ship well, handle well, and can be high stacked safely in storage. Transporting pulp shipments in wide doorway box cars can make a considerable savings in unloading time. Where narrow doorway cars are used, over one-third of the total unloading time can be spent getting the doorway bales out of the car. Attention to the piled height of bales in the car can make a considerable difference in the condition in which a shipment is received. If the bales are piled too high the loads will shift in transit causing interlocked piles, distorted bales, and unstable units which are difficult to unload and warehouse. In working out satisfactory piling heights for shipments, it is advisable to consult with the Traffic Department to make sure established minimum freight rates are not jeopardized.

The next area which affects the cost of unloading and warehousing baled pulp is the rate at which pulp is received. At the Rhinelander Paper Co. this cost has been kept at a minimum by close cooperation between the traffic department, the purchasing department, and the materials handling department. Careful attention is paid to the pulp requirements of the mill; shipments are planned over each month. If unusual circumstance requires bunched shipments of pulp, the materials handling department is notified and plans are made for handling the shipments. Since two warehouse facilities, about a mile apart, are used for the storage of pulp, a schedule board of pulp shipments is maintained in the materials handling department office. Attention to shipping dates and expected arrival dates, avoids the unnecessary transfer of pulp from the reserve storage warehouse to the mill warehouse. Pulp unloaded and warehoused at the mill is handled once while pulp transferred from the reserve warehouse is handled twice.

Safety Precautions a Must

Certain precautions must be taken for the safety of personnel in unloading pulp shipments. At Rhinelander the safety procedure specifies that no one shall stand in front of the doorway of a pulp car when the door is opened. Also that an employee must open the door in such a manner that he does not expose himself to the opened door. On a number of occasions bales have tumbled out of the car as the door opened. A 500 pound bale of pulp does not contribute to the longevity of an employee. No employee is permitted in a box car from which pulp is being unloaded. Without warning, piles of bales have toppled over in the box car while the fork truck operator secured a load, or in some cases after the fork truck left the car. Box cars tend to roll back and forth as a result of the fork truck entering and leaving the car. The rolling action is enough to give unstable piles of bales the impetus they need to tip over. The momentum required to drive the forks of the truck under the piles of bales will also topple unstable piles.

All employees are warned to stay away from the dock plates used between the dock and the car door. The dock plates have heavy drop bolts and locking devices, but the danger of a dock plate sliding back when the fork truck enters the car is always present. This is particularly possible when the car floor is higher than the dock and while the operator takes the first bales out of the doorway of the car. At this time the front wheels of the truck secure all of their traction from the dock plate. Employees are also instructed to cut off any broken bale wire caused by unloading and handling. Loose bale wire can cause serious cuts or the loss of an eye of an employee working or passing through the warehouse.

All fork truck operators are given a complete indoctrination in the operation of a fork truck. Part of this indoctrination includes the use of a driver evaluator which checks field of vision, color vision, distance judgment, visual acuity, and reaction time. Operators are assigned to a regular fork truck operator for instruction during the first week on the job. The regular operator must evaluate the new operator at the end of the week and complete a check sheet of instruction performed. The value of this program is two-fold: First, safe, productive operators are acquired in a minimum amount of time. Second, a better understanding of the use of the equipment results in reduced maintenance costs.

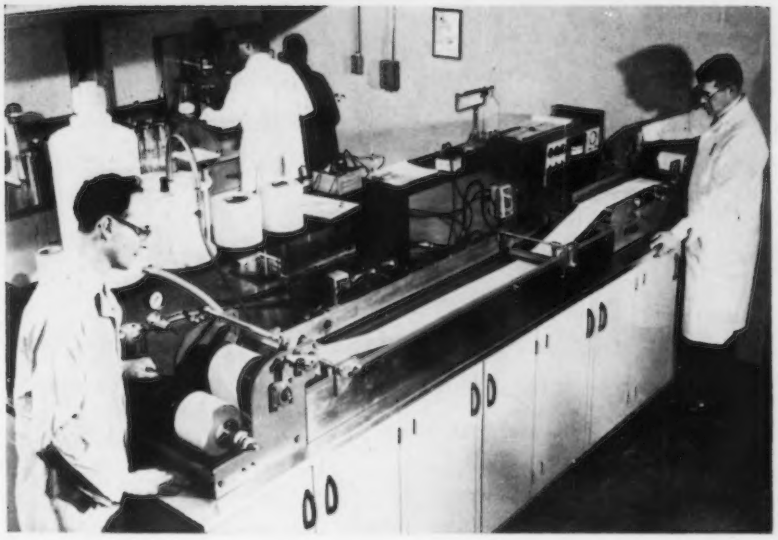
Storage Methods

Warehousing design and storage methods must take into consideration the piling characteristics of the baled pulp received. As mentioned before, uniform bales, compressed, and tied in a flat rectangle can be safely and easily high stacked in a warehouse. Unfortunately, all pulp shippers are not able to supply bales having these characteristics. At the Rhinelander Paper Co. about half of the different types of baled pulp received cannot be stacked into a stable pile over five bales high without the support of a building wall. To withstand the pressure of stacked bales, new pulp warehousing facilities are built with brick walls. Where facilities constructed of wood must be used, the walls are given additional support both inside and outside of the building. Some companies have solved the warehousing problem by using storage pits and handling the pulp with overhead traveling cranes equipped with a bale grab. Where pile stability is not a problem, a number of companies have had a great deal of success storing pulp bales outside, high piled, under black or other colored plastic film.

At the Rhinelander Paper Co. main plant warehouse, where there is a constant turnover of pulp, bales are piled in the following manner. Three, four, or more stacks of bales, four or five high are placed across the end of a bay next to the wall. On top of these bales two, three or more stacks of bales, three, four, or five high are tie piled. That is, the top pile of bales rests on one-half of each of two bottom piles of bales. This storage method provides the stability required for high stacking in a high activity area. This same pattern is not necessarily followed in the reserve storage warehouse. The rate of turnover of pulp is not as great and stable bales are high stacked without tie piling.

To summarize, the unloading and warehousing of pulp bales is usually only part of the overall materials handling operation at a paper mill. Therefore, a proposed method of handling pulp bales should fit into the overall operation. Direct and indirect saving can also be made by considering such factors as shipping methods, personnel safety, pulp bale characteristics and warehouse design.

"Attention to detail can very well start with the supplier of pulp. Uniform bales compressed to a flat surfaced rectangle ship well, handle well and can be high stacked safely in storage."



COATING PAPER with Ethylose solution is demonstrated on Rayonier's Eastern Research Division lab coater.

LEFT-HAND COLUMN contains chemical cellulose subjected to sodium hydroxide as is new graft cellulose, in right-hand series. "Ethylose" responds instantly to caustic, forming a clear solution.

Coating Seen As Use of Graft Cellulose

Rayonier says first of series of modified cellulose materials has many other end uses.

A new industrial raw material resulting from the highly uniform grafting of an organic compound to the wood cellulose polymer and representing a significant advance in cellulose chemistry was demonstrated recently at the Eastern Research Division of Rayonier, Inc., in Whippany, N. J.

Trade-named "Ethylose," the new material is seen by company officials as only the first in a whole family of modified cellulose in which various chemicals and polymers are grafted onto a basic cellulose backbone. Potential markets of special interest include coated papers, textiles, paints, ceramics and foods. Rayonier said it foresees such immediate new products as textile sizes, binders and coatings.

R. L. Mitchell, general manager of research, explained that Ethylose is a high-quality, purified wood cellulose modified or grafted with a small amount of ethylene oxide to alter its behavior characteristics. He stressed that the material is insoluble in water. But it can readily be dissolved in aqueous alkali to render stable and useful solutions.

The amount of substitution of ethylene oxide is only four per cent, Dr. Mitchell declared, adding that "this is the first time an inherently soluble cellulose bulk raw material has been commercially produced at such a low level of substitution."

It was noted that Ethylose differs from viscose in that it is stable in the small pellet form in which it is prepared as well as in solution. It can be shipped for long distances or stored for long periods without deterioration and without the need and expense of handling large quantities of water and other solvents.

Questioned as to price, Michael A. Brown, general manager of sales, reported that the present price for the product was 50 cents a pound, available in 50-pound sacks. However, when production becomes established and manufacturing savings are realized, price reductions are expected.

Rayonier has recently placed in operation a new plant at its Fernandina Beach, Fla., division for the manufacture of the material. Dr. Mitchell reported that the Ethylose plant was using a continuous, automated process employing new concepts in both reaction principles and in equipment designs. Details, he said, could not be disclosed at this time because patent coverage is being sought.

D. K. Smith, research manager, demonstrated that up to 8-12 per cent Ethylose can be dissolved in a solution of 5 per cent or more of a sodium hydroxide concentration. Other bases, he said, such as potassium hydroxide and lithium hydroxide can also be used. The Rayonier graft cellulose is also soluble in the common cellulosic solvents such as cuprammonium hydroxide, cupriethylene diamine, ammonium thiocyanate, sodium ferric tartrate, Cadoxen, etc. Ethylose swells slightly in quaternary ammonium compounds and is insoluble in nearly all organic solvents, as well as water. The solutions were seen to be clear, even without filtration. It was explained that in many of the proposed applications for the material, a filtered solution is not essential.

Ethylose solutions can be adjusted to proper solids-viscosity ranges for coating, tub sizing or surface spraying. Ethylose can be regenerated by alkali removal or heat followed by washing. The particular method selected will depend on the process and end-use requirements, Dr. Smith said.

Neutralization can be accomplished by acid-salt solutions such as 10 per cent H_2SO_4 and 15 per cent Na_2SO_4, or by acid alone. Acid-salt solutions of a dehydrating nature regenerate a product with higher density, lower gel swelling and best physical strength, he said. Temperatures in the range of 40-60° are preferred.

A Highly Significant Report
On This Important New Pulp

Latest Developments

In Bleaching Cold Soda Pulps

Results of bleaching with peroxides, hypochlorites and hydrosulphites are reported both alone and in various combinations and techniques.

A. von Koeppen,
Associate Research Professor,
Western Michigan University,
Kalamazoo, Mich.

Chemi-mechanical pulps prepared with cold soda are considerably darker than groundwood (35-50 per cent G.E. brightness) and must be bleached with oxidizing or reducing agents. However, this can be avoided by selecting special conditions with NSSC liquor. For example, Stora-Brite pulp is commercially produced from birch at 85 per cent yield with a brightness of 60 to 65 G.E. **(10)**

Because of brighter pulp and higher opacity, the NSSC process has certain advantages over cold soda. It is possible to improve the brightness of cold soda pulp by using one of three bleaching chemicals (or a combination of them) in a mutistage bleaching process; namely,

1. Hydrogen or sodium peroxide
2. Calcium or sodium hypochlorite
3. Zinc or sodium hydrosulphite.

Bleaching with Peroxides

Peroxide bleaching was used for bleaching of groundwood in the last 10-15 years because it has the advantage of a relatively large increase in brightness without materially decreasing the yield or adversely affecting the quality of the pulp. Before development of peroxide bleaching, the use of unbleached groundwood or chemi-mechanical pulps in higher quality paper or board was restricted by a relatively low brightness and stability of the product.

According to the Kubelka-Munk theory, when chemical pulps bleached to a higher brightness of 80 G.E. are blended with groundwood or chemi-mechanical pulps of 60 G.E. in a 50-50 per cent mixture, the brightness of the blend will never be 70 G.E. but considerably less. That means that when a higher percentage of chemi-mechanical pulp is used, the final brightness value is governed by the lowest brightness value of the pulp. Consequently, the higher brightness of paper or board can be obtained by bleaching chemi-mechanical pulp or groundwood but not by bleaching chemical pulp to 90+ G.E. brightness. Bleaching with hydrogen and sodium peroxide requires alkaline conditions to become effective. This is usually achieved by addition of sodium hydroxide and sodium silicate. The theory that peroxide is dissociated into water and oxygen during bleaching and that the oxygen is the actual bleaching agent was replaced by the concept that the bleaching effect is related to the dissociation of hydro-peroxide ions (OOH^-).

$$H_2O_2 + OH^- \rightarrow OOH^- + H_2O$$

The major factors affecting the peroxide bleaching of cold soda pulp could be listed as follows:

1. Amount of peroxide used on b.d. pulp.
2. Temperature of the bleaching.
3. Bleaching time.
4. Consistency during the bleaching.
5. Amount of alkali.
6. Amount of sodium silicate and other additives used.

Foderaro, Kenney, Roaka, and Solari of Shell Chemical Corp. **(26)** investigated the variables affecting cold soda bleaching with hydrogen peroxide. They found that the use of high temperature yielded the advantage of lower reaction time, greater potential brightness and reduction in chemical costs, which more than offset the increased steam costs. Although not as important as temperature, the alkali furnish also affected the maximum brightness value and the corresponding reaction time. The alkali application must therefore be carefully selected in order to obtain optimum bleaching conditions.

Increases in the amount of peroxide resulted in increased brightness gains. However, when the limit is reached, a further increase in hydrogen peroxide furnish is accompanied by only a minor increase in brightness. It was also found by Foderaro, et al, **(26)** that the brightness gains obtained during the hydrogen peroxide bleaching of aspen cold soda pulp were generally superior to similar brightness gains reported on aspen groundwood pulp. Brightness gains of 18 per cent were obtained while chemical and steam costs totaled less than 75 cents per point per ton of bone dry pulps. They also obtained a higher brightness gain when higher consistency was used. For example, about a three point higher brightness was obtained when bleaching was done at 13 vs. 7 per cent b.d. It is also claimed by the same authors that at the higher consistency a lower reaction time is required.

Besides the previously discussed variables affecting the bleachability of cold soda and other chemi-

This is a continuation of the article on Chemi-Mechanical Pulps which began in last week's issue.

*10. Evans, John C. W., Paper Trade Journal, 141, No. 36-39 (Aug. 24, 1959).

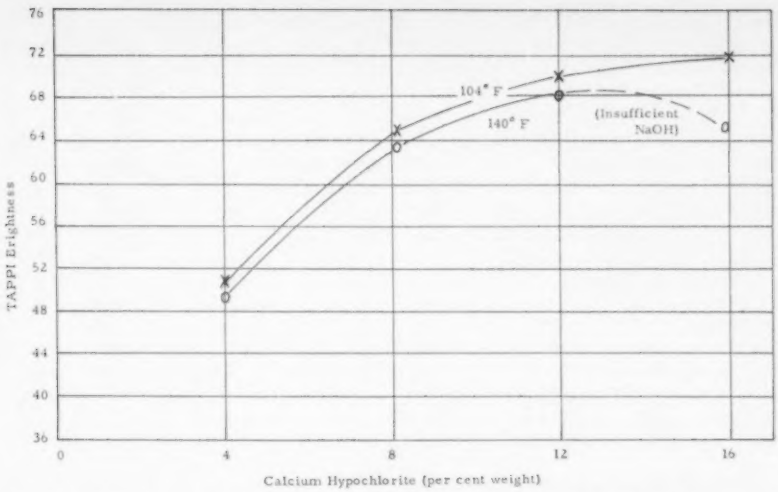


Figure 8: Mixed hardwood cold soda pulp brightness attained at optimum conditions using single-stage calcium hypochlorite bleaching (32).

mechanical pulps, there are other factors which could affect the peroxide bleaching considerably. One of the most important variables is the quality of the wood used, species, etc. For example, it was found by Smedberg and Stalter **(27)** that pulp prepared from a caustic-treated beech, birch and maple mixture obtained the highest brightness of 74 G.E. using 1.25 per cent hydrogen peroxide. The same type of pulp prepared from white oak and birch was bleached to 69 and 70 per cent G.E. brightness, respectively. Brightness of 61 to 70 per cent was obtained from sodium bisulphite-treated balsam, cottonwood, yellow poplar and gum. Pulps produced from untreated chips of Douglas fir, jack pine and western hemlock can be bleached with 1.25 per cent H_2O_2 to 49-58 G.E. brightness only.

It can be concluded from this investigation **(27)** that cold soda pulps with higher unbleached brightness are easier to bleach with peroxide. For example, the same authors found that pulps produced from gum, cottonwood, and Douglas fir (unbleached brightness 23-42 G.E.) gave a pulp with a lower brightness (40 to 64 G.E.), after bleaching with 1.25 per cent hydrogen peroxide.

Commercial and laboratory practice also showed that cold soda pulp produced from freshly cut wood is easier to bleach to a given brightness than pulp from wood which was subject to fungial attack. **(28)**.

Heavy metals such as iron, copper, and manganese **(29)** occurring in the production water, chemicals or metal dust removed from the equipment by friction or chemical action (e.g. refiner plates) can considerably offset the bleaching process by decomposition of peroxide during the bleaching. Therefore, stainless steel equipment, good quality water, and good chemicals are also important factors in the production of bleached chemi-mechanical pulps.

Laboratory work and mill practice have shown that some chemicals when used as a pulp pretreatment prior to the peroxide stage, materially assist in the bleach response obtainable. One known method of pretreatment of cold soda pulp is to give the refined and screened stock an acid soak and thickening before the peroxide bleaching stage. This is achieved by adjusting the pH of the dilute stock to 3.0-3.5 with sulphuric acid. The use of this form of pretreatment may give, in some cases, an appreciable increase in bleach response. The reasons for the better response of acidified pulp are not clear and much more basic work should be done in this direction until this phenomenon can be explained.

To prevent color reversion after the peroxide bleach, most peroxide processes require neutralizing agents which are usually SO_2 water, $NaHSO_3$ or mineral acid. This technique is particularly desirable for mixtures of bleach groundwood or chemi-mechanical pulps which are blended with unbleached sulphite, as traces of peroxide will sometimes redden the sulphite fraction.

The cost of chemicals required for acid pretreatment is quoted to be 35 cents per ton **(27)**. Eight pounds of SO_2 are required for neutralization **(30)**. These figures vary depending on local conditions.

Bleaching with Hypochlorite

Simmonds and Kingsbury **(31)** showed that cold soda pulp prepared from hardwoods could be bleached with calcium hypochlorite. An aspen cold soda pulp was brought to 70 G.E. brightness with 10 per cent available chlorine applied as calcium hypochlorite and buffered with two per cent of sodium hydroxide and four per cent of sodium silicate. Reaction time was 90 minutes and pH values were 11.1 at the beginning and 9.1 at the end. Similarly, the brightness of a sweetgum cold soda pulp was increased from 48 G.E. to 66.5 G.E. and that of red oak pulp from 38.7 to 65.8 G.E.

Bleaching studies were conducted at Shell Union Technical Service Laboratory **(32)** on eastern mixed hardwoods using 4, 8, 10, and 16 per cent calcium hypochlorite on b.d. pulp. Figures 8 and 9 show the effect of calcium hypochlorite on bright-

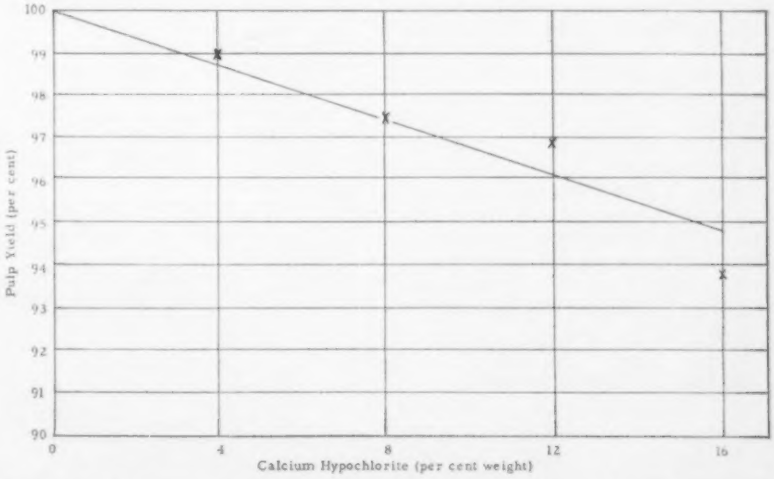


Figure 9: Yield from single-stage calcium hypochlorite bleaching of mixed hardwood cold soda pulp (32).

ness as yield. It is evident from Figure 8 that higher amounts of calcium hypochlorite increased the brightness of cold soda pulp from 40 to 72 per cent. It was also found that the brightness of bleached cold soda pulp was quite sensitive to pH and the amount of alkali used. Application of a higher temperature results in a significant reduction of reaction time with a slight drop in final brightness. But in contrast to peroxide bleaching, there is no advantage in using higher temperature (140°F.) versus lower temperature (104°F.). Comparing the action of bleaching agents showed that sodium hypochlorite gives a slightly better result than calcium hypochlorite.

In Figure 9 yield data are plotted against the amount of calcium hypochlorite used in bleaching of cold soda pulp. From this figure it is evident that with the application of 10 and 16 per cent calcium hypochlorite, three and six per cent yield respectively on b.d. pulp were lost. This bleaching loss is considerably higher than that caused by peroxide bleaching.

Brown **(33)** found that increasing the amount of available chlorine from eight to ten per cent in bleaching a sample of cold soda pulp from red oak with calcium hypochlorite decreased the opacity of handsheets about two points. At the same time the freeness decreased from 85 to 70 ml. C.S.F., the brightness increased about three points G.E. and the breaking length increased slightly. Summarizing different studies carried out on bleaching cold soda pulp with calcium or sodium hypochlorite it can be concluded that this kind of bleaching produces pulp with comparatively high brightness (60 to 75 G.E.) at a reasonable bleaching cost, however it has a yellowish hue.

To the author's knowledge there are at the present time only two commercial operations using hypochlorite bleaching. One of them, at Boyer, Tasmania **(34)** where the cold soda pulp from mixed eucalyptus species is bleached in a Kamyr tower with calcium hypochlorite solution, containing ten per cent available chlorine and two per cent sodium hydroxide on b.d. pulp at 30-35°C and pH of 10 to 8.5. The second installation is operating in Japan. (Daishowa Co. Fiji Mill at Yoshiwara.)

Bleaching with Hydrosulphite

Sodium and zinc hydrosulphite are the reducing agents used for bleaching groundwood and cold soda pulps. Reducing agents like sodium bisulphite, sodium hydrosulphite, sulphurous acid and others have been used for improving the color of groundwood for many years by spraying or flooring the reducing agent on a wet machine. The use of hydrosulphites for bleaching was originally developed in the U.S.A. for the brightening of West Coast groundwoods; for example, hemlock and fir which are lower in brightness and have a more reddish shade than spruce groundwood.

According to Andrews **(35)** the process is economical and efficient on groundwood for a brightness rise of six to seven points. For western hemlock it is equivalent to a brightness increase from 53 to 60 G.E., which is similar to the brightness obtained for unbleached groundwood from spruce.

The effect of different variables on hydrosulphite bleaching was discussed in a bulletin issued by the Virginia Smelting Co. **(36).** It was found that consistency in the range of 3.0 to 18.0 per cent does not appreciably affect the final brightness of groundwood pulps bleached with hydrosulphites. The pH range for bleaching is considered to be between 5.0 and 8.5. The most efficient range for zinc hydrosulphite is from 5.0 to 6.0 with an optimum of about 5.6. For sodium hydrosulphite a wider range of pH, from 6 to 8.5 with an optimum value of 7.0 should be used. It is claimed that it is possible to obtain equal brightness responses with either zinc or sodium hydrosulphite by adjusting the initial pH of the stock. However, it is stated that the increased stability of zinc hydrosulphite solution on exposure to air and acid conditions offer advantages for zinc hydrosulphite in mill use. The reaction temperature also influences the bleaching process. In general for hydrosulphite bleaching a temperature in the range of 140°F. is used. The brightness gain is increased to a maximum in hydrosulphite bleaching with an increasing ratio of the bleaching agent on b.d. pulp which practically cannot be exceeded. This is the drawback of hydrosulphite bleaching. For example the maximum bleaching effect was obtained by Neale **(37)** on eucalyptus groundwood with about 0.8 to 1.0 per cent of zinc hydrosulphite. Similar results were obtained at the laboratory of the Virginia Smelting Co. **(36).** It was also found that small amounts of iron, copper or other cations in the pulp or process water, can affect the brightness of both unbleached and hydrosulphite bleached pulps. This action could be partly controlled by sequestrants such as sodium tripolyphosphate, "Versene," etc. It is known that hydrosulphites are reducing agents and they can be destroyed readily by contact with air at high temperatures. Therefore it is essential that during the reaction air should be excluded as much as possible.

Bleaching of cold soda pulp from aspen wood pulped at the semi-commercial installation **(38)** showed that

TABLE II—BLEACHING ASPEN COLD SODA PULP* WITH ZINC HYDROSULPHITE

Bleach No.	Amount of Hydrosulphite**	Temperature	Consistency	Duration	Acidity Initital pH	Acidity Final pH	Brightness
	Per cent	°C.	Per cent	Min.			Per cent
1	0.5	55	6.0	15	5.4	...	57.9
		60	6.0	75	...	...	58.6
		60	6.0	110	...	5.7	58.6
2	1.0	50	6.0	15	6.0	...	58.6
		60	6.0	60	...	...	59.2
		60	6.0	110	...	5.5	60.2
3	1.0	70	6.0	30	5.4	...	60.9
		70	6.0	60	...	...	61.9
		70	6.0	120	...	5.5	61.9
4	.5	70	3.5	30	5.7	...	60.2
		70	3.5	60	...	...	61.1
		70	3.5	120	...	5.9	63.2
5	1.0	70	3.5	30	5.7	...	61.2
		70	3.5	60	...	...	62.4
		70	3.5	120	...	5.8	63.3

*Brightness of unbleached pulp 48.8 per cent.

**Zinc hydrosulphite (75 to 85 per cent purity) applied to pulp after acidifying with sulphur dioxide. 0.3 per cent sodium tripolyphosphate used in bleaches No. 1 and 2, and 3; and 0.5 per cent in bleaches No. 4 and 5.

it is possible to bleach this pulp from 48.8 to 60-62 G.E. brightness using 0.5-1.0 per cent zinc hydrosulphite in 30 to 60 minutes using temperatures of 60 to 70°C. The results of this investigation are summarized in Table II. However, this final brightness of 60-62 G.E. was not stable and underwent a considerable reversion during the formation and drying on the paper machine.

A comparison of different groundwood bleaching methods was presented by Jankowski **(39)**.

The bleaching processes used for bleaching cold soda pulp can be divided into:

1. Two stage peroxide-hydrosulphite, hydrosulphite-peroxide or hypochlorite peroxide bleaching (brightness over G.E. 70).
2. One stage peroxide or hypochlorite bleaching usually applied to obtain 60-70 G.E. brightness pulp.
3. Refiner bleaching with peroxide (brightness 55-65 G.E).

Conditions affecting one stage peroxide or hypochlorite bleaching were discussed before.

Two Stage Bleaching

Two stage bleaching was investigated by Smedberg and Stalter **(27)**. They confined the previous finding that cold soda pulp bleached with sodium or calcium hypochlorite has a definite yellow hue which is undesirable. Results of this investigation indicate that when the peroxide bleaching stage after the hypochlorite stage was applied, the yellow hue was reduced. Further studies proved that a peroxide-hydrosulphite bleaching sequence would eliminate practically all the yellow cast of bleached cold soda pulp. It is claimed by Smedberg and Stalter that cold soda pulp prepared from a mixture of beech, birch and maple chips could be bleached to 78 per cent G.E. brightness by the peroxide-hydrosulphite bleaching sequence. Studies of the use of reversed sequence (hydrosulphite-peroxide) have shown that for some pulps the final brightness obtained is equal to the peroxide-hydrosulphite bleaching sequence. However, the equipment requirement is greater for the hydrosulphite-peroxide sequence, especially when an acid treatment is required before bleaching and the hydrosulphite stage is operated at low consistency, thus an extra thickener is necessary before the peroxide stage.

Similar results on two stage peroxide-hydrosulphite bleaching of groundwood was obtained by Barton **(40)**. He found that the two stage peroxide-hydrosulphite process is an economical and flexible method, which is less expensive for bleaching groundwood pulps to higher brightness than peroxide alone. The hypochlorite-peroxide bleaching sequence was used earlier at the Gould Paper Co. in Lyons Falls, N. Y., where cold soda pulp was bleached from 38-40 G.E. to 60-68 G.E., using 10 per cent available chlorine at 105°F for 1.5 to 2 hours at approximately 10 per cent consistency. Later this technique was abandoned for the peroxide-hydrosulphite sequence.

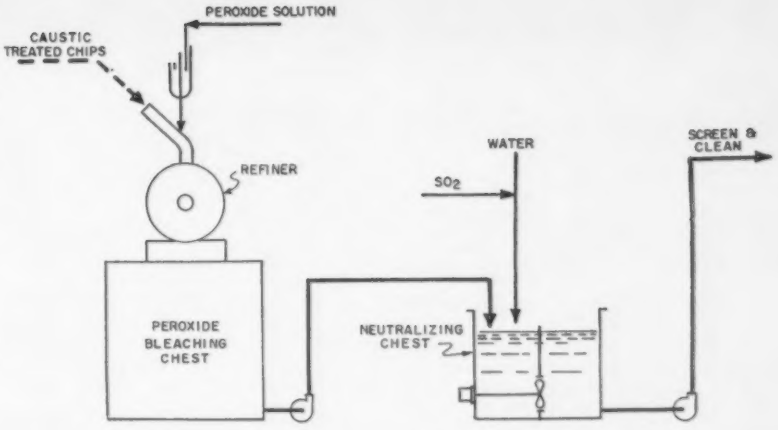


Figure 10: Typical process for in-the-refiner peroxide bleaching of cold soda pulp.

Refiner Bleaching

In order to cut down the installation cost of new cold soda mills and eliminate the costs for a new bleaching plant the refiner bleaching was developed by Bauer Bros. Co. and Becco division of Food Machinery and Chemical Corp. in U.S.A. At the present time two mills, Diamond National Co., Ogdensburg, N. Y. and American Box Board Division of Packaging Corp. of America, Filer City, Mich., are operating this process and two additional installations are under construction. Refiner bleaching allows to produce cold soda pulps comparable in brightness to conventional softwood groundwood (55-65 G.E.) without having a bleaching plant. It has been demonstrated that, by introducing peroxide bleach liquor together with the caustic treated chips during refining, bleached cold soda pulp can be produced. Because the heat generated during the refining is utilized for bleaching no additional steam is required. Temperatures of the pulp leaving the two stage refining installation vary from 180 to 205°F. After tower or chest where some retention time is required **(41)** the bleached refined stock is screened, centrifugally cleaned and thickened for storage in the usual manner. The bleached pulp can be neutralized and the pH adjusted with SO_2 in a regular way. A schematic diagram of a typical refiner bleaching installation is shown in Figure 10.

A description of the refiner bleaching system conducted at a comparatively low consistency, which required a considerable retention time was presented by Jahne and Price **(42)**. After the caustic treatment carried out in a stationary digester the agitated slurry is pumped to a drainer conveyor and the drained chips are discharged to a live bottom bin. From here the chips are fed through two refining stages and dropped into an agitated chest. The pulp has about six per cent consistency and about 180°F when it comes out of the secondary refiner. When the refiner chest is filled, it is pumped over to another chest. The pulp is left in the second chest for three to four hours following for bleaching. However, it is evident from Jahne's and Price's work that to carry out the bleach to a maximum brightness one hour retention time was completely sufficient in most cases.

The economic advantage of refiner bleaching with peroxide for cold soda pulp are mainly the low capital cost which:

1. Eliminates mixing equipment ordinarily required for blending pulp, steam, and bleaching liquor;
2. Reduces the size of the retention tower, and when proper conditions are used, lowers the reaction time;
3. Requires less space and piping.

From this investigation it can be concluded that to obtain medium

brightness cold soda pulp, from certain species, refiner bleaching with some retention time afterwards can be applied successfully. Due to the fact that the pulp is not washed before bleaching more peroxide will be required than with a regular tower bleaching.

Next week's installment, which concludes this article, discusses how and where chemi-mechanical pulps are used.

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NYPEN Increases Production With High Velocity Dryer

When New York and Penn decided to increase the production of its No. 8 machine, it had the choice of adding three drum dryers to the afterdryer section, or of installing a high-velocity air dryer beneath an existing drum. Since they were short of floor space, the high-velocity dryer was selected. They found the high-velocity dryer had other advantages too—it could be installed without moving rewinders and other equipment, and it cost less.

Higher Speeds

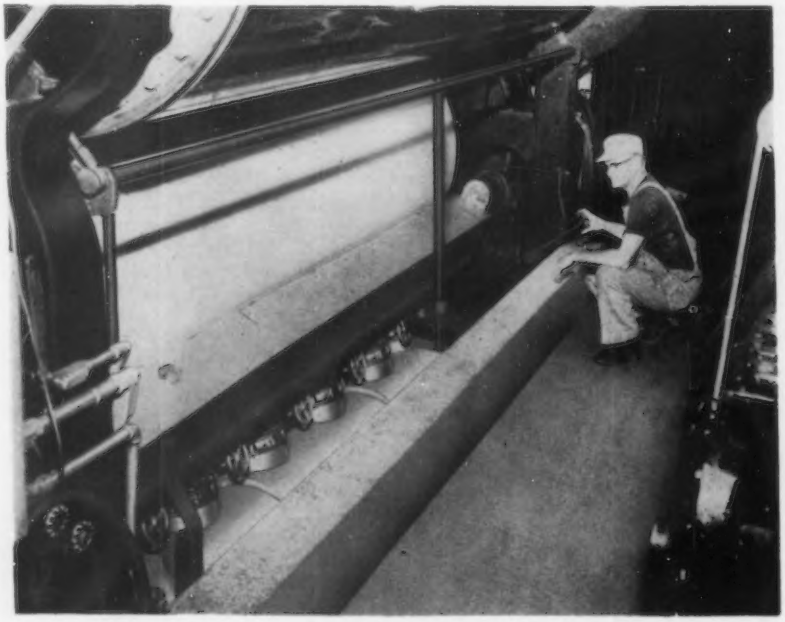
Once the new dryer was installed, NYPEN increased No. 8 machine bulky book paper output in the neighborhood of 25 per cent. Speeds rose from 400-425 feet/min. to 500-550 feet/min. At this increased rate of production, additional earnings easily paid for the dryer in less than a year.

The dryer selected was the DL type supplied by the J. O. Ross Engineering Division of the Midland-Ross Corp. This dryer is essentially a sheet-metal chamber that fits under (or over) and partially around a drum dryer. The dryer discharges air against the traveling web through slots at velocities up to 15,000 c.f.m. and at temperatures up to 315°F. The machine tender controls air velocities by adjusting dampers in six ducts which connect the main air supply header with the dryer. The dryer is divided by vertical partitions into six separate compartments each serviced by one of the six supply ducts. Different velocities can be maintained at different web locations if moisture content varies across the sheet. The tender controls temperature by means of an indicating temperature-controller that regulates the flow of steam through coils over which the high-velocity air is circulated.

Six Dryer Sections

The six independent dryer sections are each partitioned in two by horizontal dividers. Incoming air is ducted directly to the compartments next to the web and discharges through the slots in the duct. These slots run parallel with the width of the web. Return air is drawn into inlets located between the air-supply slots and is piped to the outer compartments from which it enters a second header and is returned to the Ross heater. The heater brings it back to operating temperature and it is recirculated to the dryer.

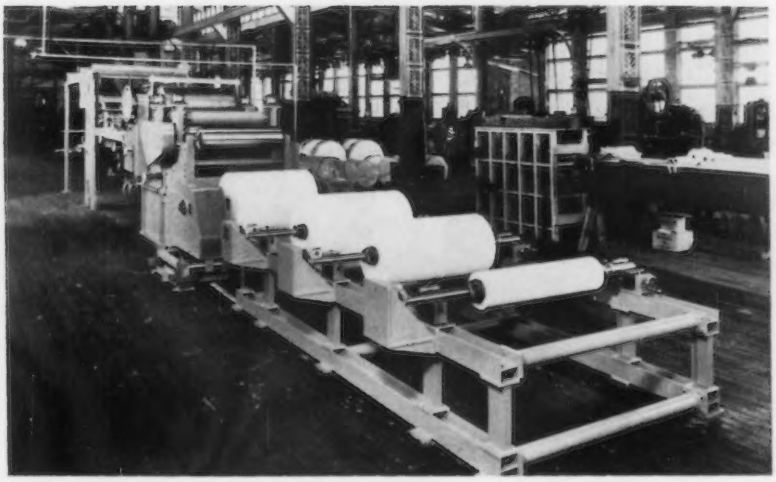
The machine tender can drop the dryer out of position for threading by operating a pneumatic cylinder that hinges the unit downward several inches from the drum. The air heater and circulating fan are in the basement under the afterdryer, close to the high-velocity dryer. The high-velocity dryer is installed beneath the first drum dryer of the afterdryer section.



Machine tender regulates air supply to one section of high-velocity dryer at New York and Penn #8 machine.

Further Developments in New Equipment For Finishing Rooms

This roundup supplements the survey of finishing machinery first published late last year. Items reviewed herein represent very recent developments or those received too late to be included in the earlier survey.



Rotary Sheeter Added to Finishing Products Line

A line of rotary sheeters has been announced by F. Javid, president of Smith & Winchester Mfg. Co. of South Windham, Conn.

"Pre Hi" sheeters use the principle of straight line cutting from feed rolls to knife with close control of web tension. Designed to run at a speed of 1000 f.p.m. on single as well as multi-web, "Pre Hi" features great accuracy of cut-off.

The "Pre Hi" rotary sheeters are built in standard sizes ranging from 19 to 156 inches, and cut-off ranges of 8 to 82 inches for single web with electronic scanning device or multi-web, and cutting to registration.

"Pre Hi" sheeters are the third finishing room product developed by Smith & Winchester in the past two years. They have also produced Spacemastre electronic automatic spacer for automation of trimmers, and Trimmastre trimmers. Smith & Winchester Mfg. Co., South Windham, Conn.

Double Spraying Head Gluer Speeds Roll Wrapping

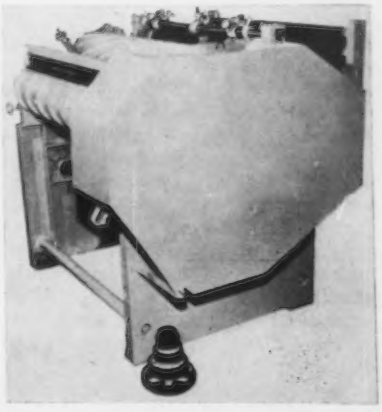
The Lamb automatic head gluer automatically applies glue to the head or cap and has it ready the instant the operator is ready to transfer it to the roll header platen. At the proper time in the sequence of roll wrapping procedures, the operator pushes the button, initiating the automatic cycle of the head gluer. While the operator finishes his work on the roll, the turntable revolves and the automatic spray mechanism sprays a swath of glue around the perimeter of the paper head. While the operator is passing the head to his helper at the other end of the roll, the second head is sprayed.

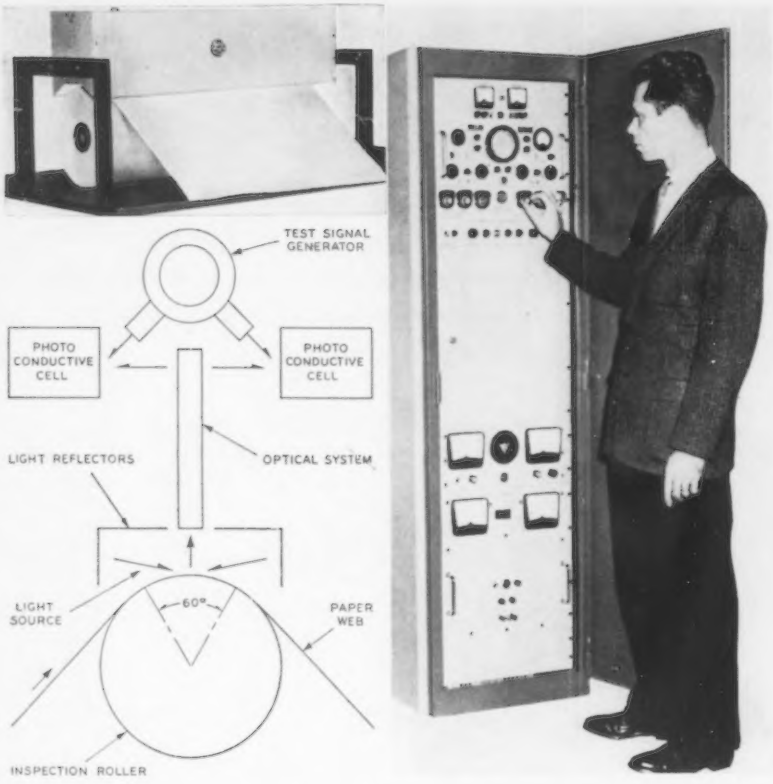
Only a thin coating of adhesive is sprayed, resulting in (1) a considerable saving of glue; (2) and even coating of glue right up to the periphery of the head, making a much better bond and a neater looking package; and (3) elimination of the danger of glue running or dripping on the ends of the paper roll.

The gluer's feed table is constructed of aluminum with its frame fabricated of mild steel plate. The table is set 34 inches in height, and is available in 42, 50 and 60 inch diameters. It will handle heads up to 72 inches diameter requiring 6 to 7 seconds to glue one head. Drive is supplied by a ⅓ h.p., 1200 r.p.m., 110 v. motor. The glue pot is a five gallon pressure type with stainless steel insert liner. Twin heads for spraying a wider glue swath are available. Lamb-Grays Harbor, P. O. Box 359, Hoquiam, Washington.

Redesigns Cutter to Handle Wider Rolls

Hamblet Machine Co. has streamlined its Model MDS cutter to handle up to 100 inch wide rolls. The MDS design offers safer operation (all drive gears are enclosed), ease of operation (all adjustments are conveniently located), easier maintenance (all lubrication points are quickly accessible), and rotating members are precision balanced to reduce inherent vibrations to below minimum allowable. Ribbed construction adds strength and eliminates bulk to supporting structures, coupled with optional P.I.V., with integral differential to provide accuracy. Hamblet Machine Co., Island Street, Lawrence, Mass.





Sorts Defective Sheets by Degree of Imperfection

The RCA Optical Paper Inspection System is an electronic device designed to detect and classify visual defects, such as, calender cuts or holes, in the surfaces of webs of paper of varying widths. This equipment, consisting basically of a sensing head and a control rack containing the signal collection and classifying circuitry, continuously monitors the web at speeds of 200 to 1000 f.p.m.

Three applications for this equipment are suggested: use on cutters to sort sheets of paper into "firsts," "seconds" or "rejects" according to their flaw content; use on rewinders to provide overall quality classification for each roll; use on the output of the paper machine to sound an alarm to prevent producing large quantities of inferior paper.

On wide machines it is possible to electrically separate the complete width into segments for independent quality grading. The output pulses, which are generated each time a defect appears, can be used to operate reject gates for sheet sorting, or totalizing counters for overall quality grading of roll stock. Many other automated quality control operations such as flagging, alarm sounding, etc., are possible.

The sensing head is located in close proximity to a chrome-plated roller over which the web of paper to be inspected is passed. On a cutter, this can be on the backstand itself or just prior to the sheeting operation itself. Two banks of incandescent lamps in the sensing head provide uniform illumination of the paper's surface. The light reflected from the paper surface is passed by a lens system to sensitive photo-conductive cells which convert the light energy into electrical information.

At the control rack dark and light signals which exceed the normal mottle pattern of the paper are handled by separate channels, since some defects produce strong dark signals and are not as objectionable as the more subtle wrinkles and creases that generally produce weaker light signals. Controls for both dark and light channels are easily adjusted so that only the flaws that exceed specifications will be signalled.

The equipment will detect dark spots roughly equivalent in area to a 1/16 inch diameter circle with a diffuse visual reflectance of 50 per cent (or less) of that of the surrounding paper are easily detected at speeds of 1000 f.p.m. Dark colored or transparent paper cannot be inspected with this system. Holes of a corresponding size are likewise easily detected. Any smudge ½ inch in diameter or larger with a diffuse visual reflectance of 95 per cent or less compared to the rest of the sheet will be detected.

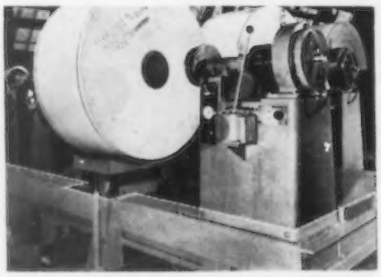
Discontinuities in the surface of the paper, such as wrinkles or calender cuts, generally can be classified in accordance with their severity.

Defects in the gloss of coated papers are detectable as a defect. Due to their nature and shape, it is, however, difficult to specify the severity of this type defect which will classify the sheet as a "first," "second" or "reject."

The RCA apparatus employs transistorized plug-in modules which permit ready expansion of the system to fit any width of web. Included in the sensing head and rack is an air circulating system that inhibits the entrance of dust. A test signal generator enables the operator to check proper functioning of the equipment at any time. Another important feature is the lamp burnout alarm system in the sensing head. Radio Corp. of America, Industrial & Automation Division, Front & Cooper Streets, Camden 2, N. J., or their national representative Southworth Machine Co., Portland, Me.

No Need For Overhead Roll Handling With Shaftless Backstand

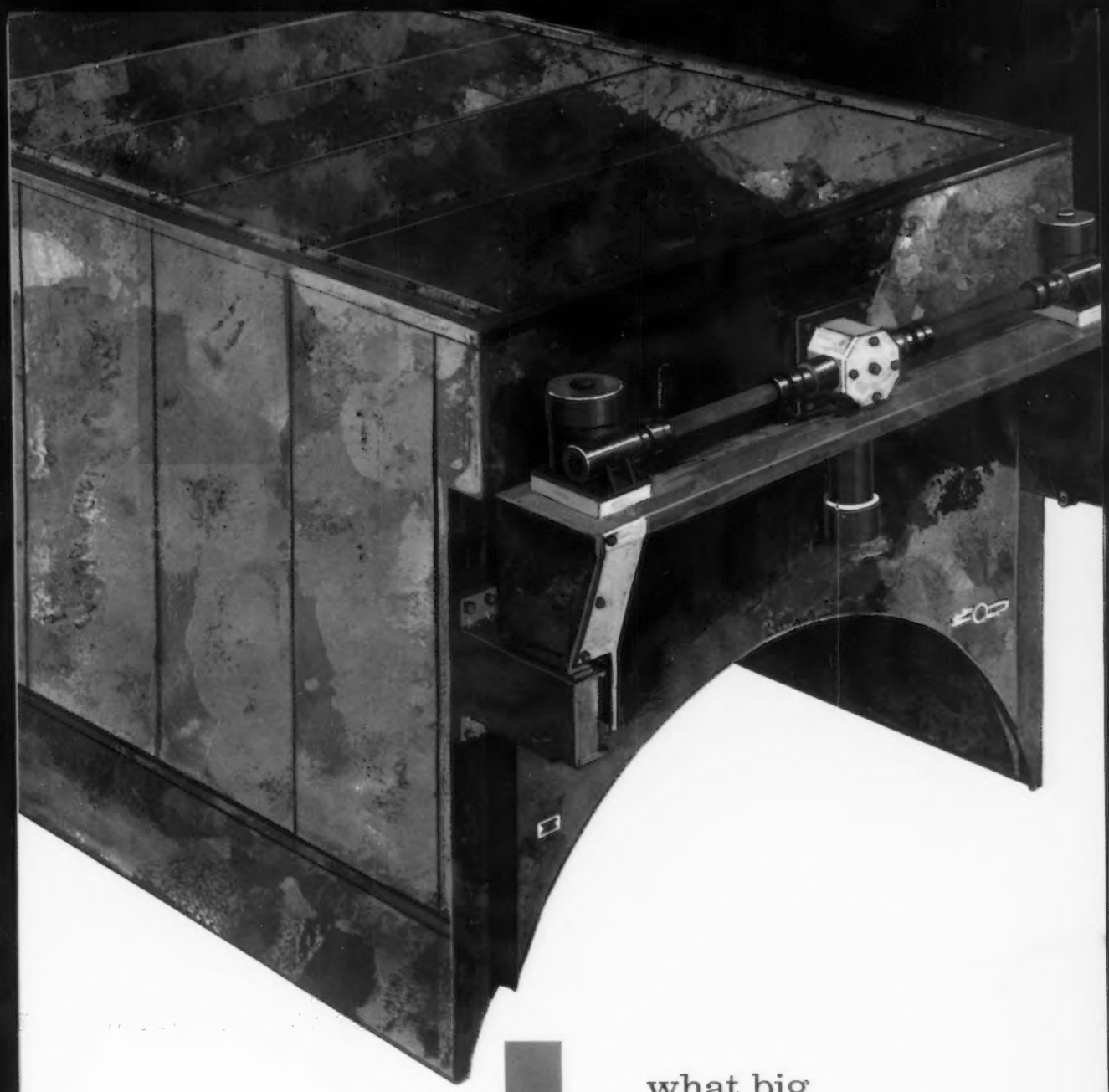
Lamb-Grays Harbor has recently introduced a shaftless cutter backstand that eliminates the need for an overhead monorail crane system in



handling rolls. Rolls are elevated into chucking position by a manually-operated, built-in hydraulic lift. The closing mechanism on the stands is pneumatically controlled, as are the water-cooled tension brakes.

Quick-change chucks are available for all core sizes and are tapered and fluted for positive, non-slip grip of the core. The stands are made for either stationary or shuttle car mounting. Remote control of sheet register from layboy operator's stand is available as an option. Lamb-Grays Harbor Co., Inc., P. O. Box 359, Hoquiam, Wash.

(Continued on page 35)



what big
advantage
does the

AIR CAP®

bring to
papermakers?

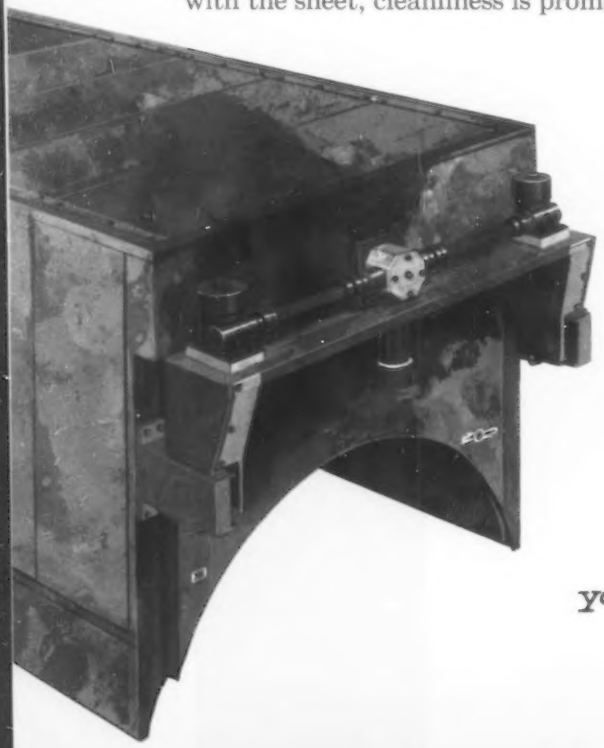
for answer, please turn page

Beloit AIR CAP®* controls and improves board and paper drying

The Beloit Air Cap couples the drying potential of high-velocity air and a design of high efficiency. Concentrated drying capacity is combined with minimum heat and power requirements and a high degree of flexibility.

The streamlined design is of very practical significance. Beloit design minimizes the possibility of interference with the sheet, cleanliness is promoted, and freedom from distortion is assured.

Cross machine correction can be provided. Beloit's arrangement has proved most effective in maintaining uniform moisture content for coating or at the reel. A Beloit representative will be happy to analyze the papermaking and economic possibilities of applications on your machine and discuss all details involved.



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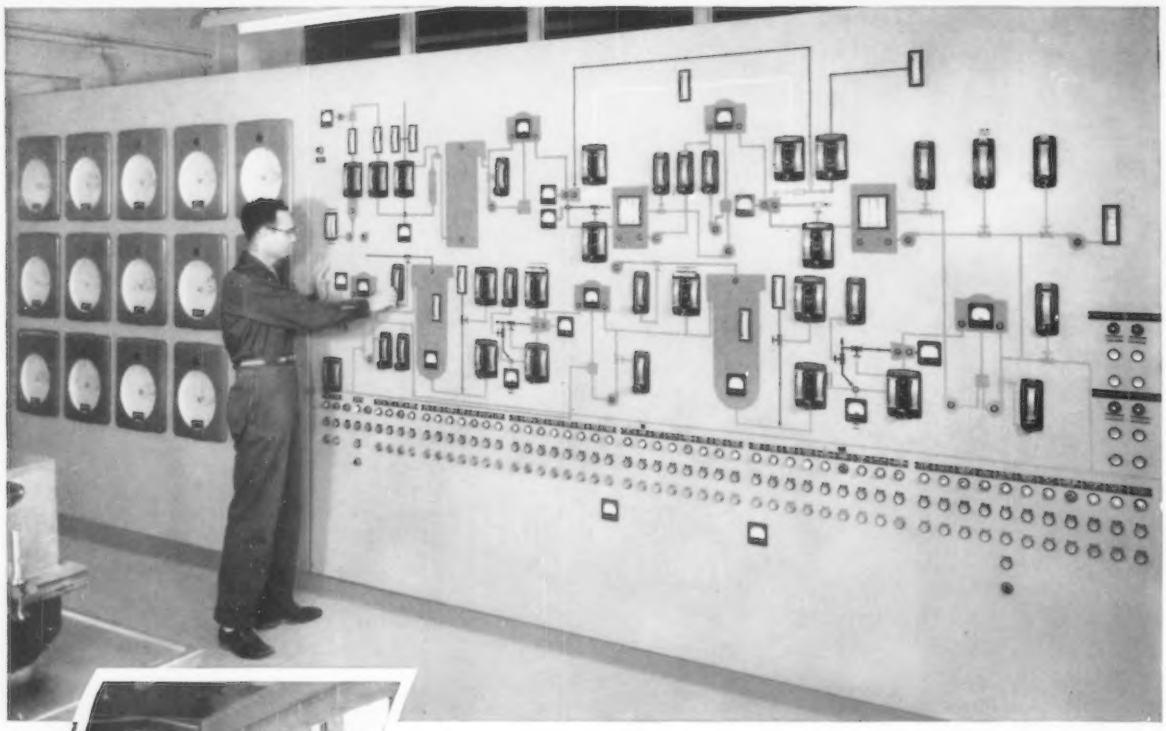

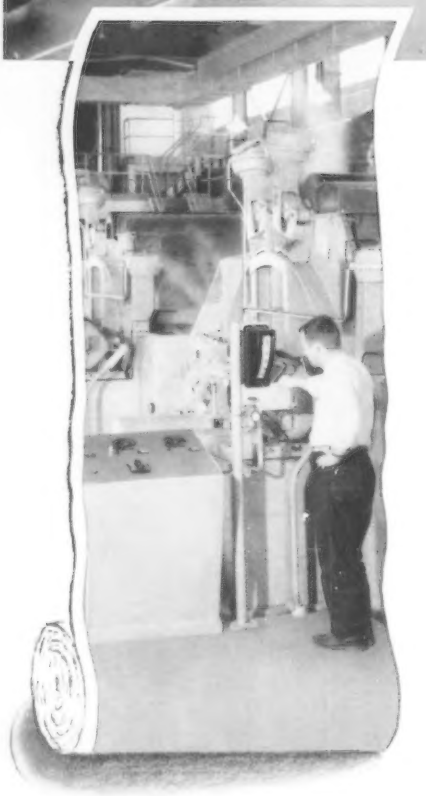

Bailey controls Marathon's five-stage bleach plant!

Marathon Southern's five-stage bleach plant at Naheola, Ala., is one of the most completely instrumented in southern U.S.A.

Rigid quality control—automatic and foolproof—keeps production going at top speed with unvarying excellence in the finished product.

The panel board in the central control room (above) was built and instrumented by Bailey. Note how it is divided into two sections. The 15 Bailey Recorders in the recorder section provide continuous circular chart records. The functional graphic panel on its right provides a complete visual picture of the entire process. Important control variables such as stock consistency, stock flow, bleach liquor flows, stock temperatures, etc., can be watched and instantly corrected, either automatically or manually.

At the same station, the operator can supply consistency-controlled stock (from any of four storage towers) to any of the semi-bleach, pine bleach, or gum bleach pulp chests on a ratioed flow, automatically controlled basis.

Each of the five vat bleach washers is equipped with automatic level control (as shown at left).

This is but one example of how Bailey is helping pulp and paper processors to greater degrees of automation, efficiency, and quality control. Let your Bailey Engineer suggest applications to fit your operation. Or write for specific control systems information for your entire plant operation. P149-1

Photos courtesy Marathon Southern Corporation

PULP AND PAPER DIVISION

BAILEY METER COMPANY

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In Canada—Bailey Meter Company Limited, Montreal

BAILEY METERS

New Finishing Equipment

(Continued from page 34)

Air Film Table Units Provide Variety of Layouts

The Lamb Airfloat series of conveyor, trimmer feed and discharge air film tables can be manufactured to fit any plant layout simply by multiple connection of the units. Two types of tables are available. The original type contains insets having spring operated ball valves. The newer type contains flared open-orifice air-escape vents rather than ball valves. A blower, rather than compressed air, serves the table, constructed in the form of a chamber delivering clean, dry air at correct pressure to correlate with weight and size of load. Bottom sheets are thus not damaged by moisture or oil. The table's framework is of lightweight extruded metal. Adjustable, tubular steel legs permit leveling on uneven floors. The table top is made of a laminated material. Standard size of each unit is 4 x 8 feet, special sizes and shapes can be made as required.

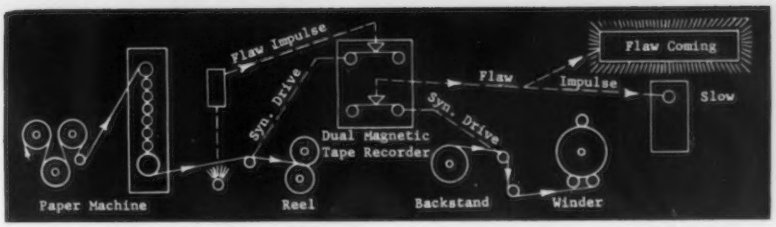
One possible trimmer feed arrangement consists of an airfloat lay-up table, a two-unit, center-belt airfloat indexing storage section, and speed-up belt to feed-back the trimmer.

Another arrangement calls for use of an airfloat table, a speed-up belt section and a special trimmer feed airfloat table with an overhead mechanical pusher to transfer the lift of paper automatically into the trimmer. Further, one trimmer's discharge set-up, consisting of an airfloat storage section, center-belt airfloat conveyor, and an overhead mechanical pusher can be designed to automatically feed a second trimmer.

Two special airfloat units have been designed by Lamb for unusual circumstances. One unit is a self-powered, travelling (on rails) skid stacker for transferring lifts of paper from trimmer to skid loading lift. These stackers are available in various sizes, with fixed or elevating top.

The second custom designed airfloat unit is a travelling-section of table adaptable to a number of situations requiring alternate pick-up and bridging of a gap, such as in front trimmer feeding.

Under certain conditions of use, notes Lamb, the Airfloat table with ball valve insets is the more practical solution to converying problems. Lamb-Grays Harbor Co., Inc., P. O. Box 359, Hoquiam, Wash.



Signals Flaws in High Speed Running Webs

Kohler's Inspectalarm is a device designed to scrutinize a running web and provide a signal indicating passage of a flaw such as a hole, a lump, or a coating skip. To be detected, the flaw must cause a change (either increase or decrease) in transmitted light. The output signal may be used in a variety of ways. It can, for instance, sound an alarm, light a warning light, actuate a marking device, trip a cut off knife, or cause insertion of a flag. The signal can be made to last for a preset interval, or until acknowledged.

When applied on a paper machine, the unit may be combined with a dual tape recorder which is driven on a lineal footage basis in synchronism with each reel. Every measurable flaw is recorded on this tape. At the end of each reel the recording action is transferred to the other tape, and the recorded tape is played back in synchronism with the reel as it unwinds in the winder back stand. Sufficient lead can be provided to slow the winder to permit visual inspection, or this action can be made automatic. Where required, tapes can be removed from the recorder to accompany the reel as it moves out.

Each scanner head can handle an area up to 60 inch wide. Multiple units can be provided for any width. A strip light source is used. Both the scanning head and the small control cabinet, which can be located as much as 100 feet away, are sealed against moisture and dust.

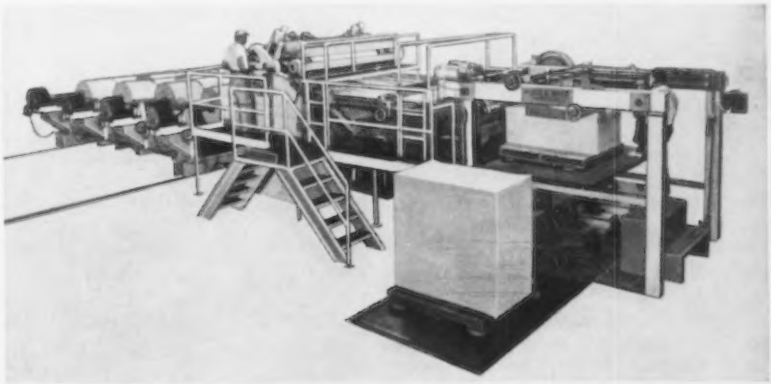
This unit is applicable to paper machines, winders, coating machines, supercalenders, and other web making or processing equipment. There are said to be no practical limitations on machine running speed. No machine changes are required for installation. Power supply requirements are nominal (115v. 5a. 60c. is suitable). Kohler Coating Machinery Corp., 9701 Cleveland Ave., N.W., Greentown, Ohio.

Shuttle Backstand Cuts Downtime for Cutter

Moore and White says its R-100 cutter-layboy unit appeals to operators because of time-saving innovations: strategically located auxiliary controls, shuttle type backstands, and automatic side delivery of skids.

The shuttle type backstand eliminates time normally spent for roll loading. Twin backstands are mounted on a motor operated carriage permitting one backstand to feed the cutter while the other backstand is being loaded with the next set of rolls. Backstand bearings are designed for both crosswise and endwise adjustment for accurate aligning of rolls. Air regulated brakes give the operator individual control of sheet tensions.

The cutter frames are of heavy duty construction for vibrationless performance. Sheet length range is



controlled through P.I.V. unit. and changes within range are obtained by means of a handwheel with a dial indicator. Accuracy can be maintained within 1/64 inch tolerance. The revolving knife and bed knife are mounted as a unit in a slope to allow the sheeted paper to be transferred into the conveying tapes with a minimum drop from the point of shear. A finger roll is furnished at nip of draw roll. Special doctor guide boards are telescopic, one section held stationary and the other moving when the knife assembly is adjusted for sheet squareness, thus keeping the board in alignment with bed knife blade at all times. All rolls and vital moving parts are balanced and mounted in anti-friction bearings to insure smooth and efficient operation. The cutter is driven by a variable speed drive operating on either a.c. or d.c., located within the machine frames.

Automatic side removal system discharges platform containing pile and skid to either side of layboy. While this discharging action is taking place, a second platform and new skid are automatically entering the layboy and raised into the desired position by a two speed electric gearhead motor. Therefore, no downtime awaiting the removal of the finished pile and skid. Sheet travel into the layboy proper is controlled by adjustable top tapes and bottom roller fingers on each pile. Sheets are precision piled by joggers. The rate of jogging motion and length of the jogger stroke are controlled by means of an independent variable speed motor. Moore and White Co., 330 East Hunting Park Ave., Philadelphia 24, Pa.

Straps Packages Automatically With Rayon Cord Strapping

A completely automatic strapping machine, designed especially for use in the recently-developed rayon cord strapping, Avistrap, has been announced by the Industrial Packaging Division of American Viscose Corp. This first automatic machine, Model AVM-1 "Avistrapper" supplements the line of hand tools and a pneumatic tensioner previously made available.

Another Avistrapper Model AVM-2 also has been developed by American Viscose for use with Avistrap on somewhat larger packages and containers, but is basically the same fully-automated machine as Model AVM-1.

Model AVM-1 automatically straps packages between a minimum size of 6 x 6 in. (or any periphery not

less than 24 in.) and a maximum size of 20 x 20 in. and in any lengths. It will package units of any size with Avistrap between the minimum and maximum size limits without adjustment of the machine. Model AVM-1 handles any width of Avistrap from ¼ to ¾ inches.

The table height of Model AVM-1 is just 34 in., and it is 28 in. wide; the total over-all height is 60 in. The length including the automatic dispenser for an 80-lb. coil of Avistrap, is 81 in. The automatic dispenser holds a coil of rayon strapping equal to four 100-lb. coils of metal strapping, thus reducing down time because fewer coil changes are needed. The machine's seal magazine holds 500 seals. The approximate weight is 750 lbs.

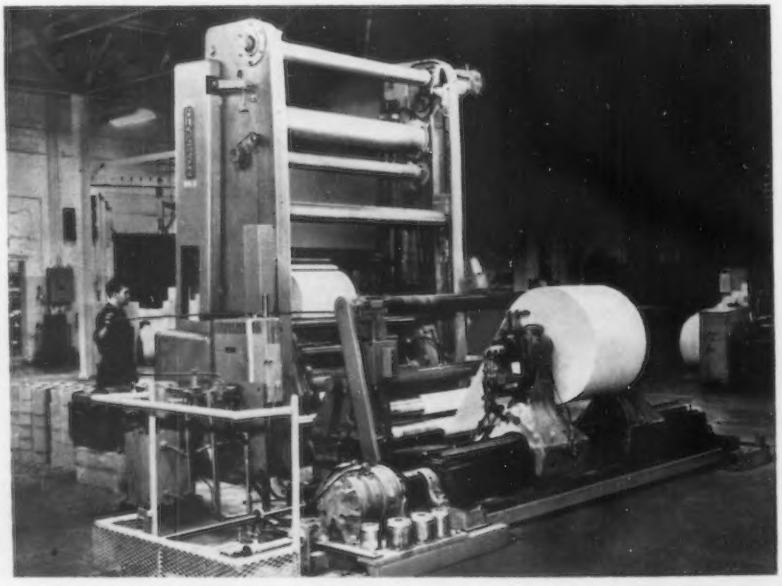
Both strapping machines are powered by a ½ h.p. 1200 r.p.m., 115 volt, single-phase electric motor and 5 air cylinders requiring a total of 1 c.f.m. air supply. The dispenser units are powered by a ½ h.p., 1700 r.p.m. 115 volt, single-phase electric motor.

Avistrap rayon cord strapping has been on the market less than a year. Weighing approximately 1/5 of comparable length and width of metal strapping—Avistrap may be disposed of through normal waste procedures, and is easy to mount on disposable coils, thus reducing down time. Avistrap may be economically imprinted with company or product name, and is available in widths ¼ to ¾ inches. Industrial Packaging Dept., American Viscose Corp., 1617 Penna. Ave., Philadelphia 3, Pa.

Slitter-Winder Heads Long List of Developments

In discussing Cameron Machine Co.'s developments, for finishing room service, Eugene J. Ward, vice president — marketing, referred to long list of recent innovations in two-drum and duplex winders, unwinds, tension controls, brakes, roll handling equipment and special roll control features.

A typical example is the 72-inch Cameron 450 system illustrated below. Roll control on this system starts with a Cameron SMP-42 shaftless automatic pickup unwind equipped with two Cameron E-7 continuous duty unwind brakes. The unwind is also equipped for parent roll oscillation and skew adjustment. Brake actuating signals flash through the Cameron 901 cam-controlled pneumatic web tensioning system, with electronic side-register control. Also,



Double Revolving Disc Refiners Provide Superior Fiber Quality

The unique fiberizing action of Bauer Double Revolving Disc Refiners preserves fiber length and helps develop fiber strength and pliability. Paper and Board produced from such pulp has greater bursting strength and high tear values with a minimum drop in freeness value.

Typical uses include: groundwood, kraft and sulphite screenings, semi-chemical pulp, Bauerite pulps (ground-wood from chips, cold soda, etc.), straw, bagasse, sulphite pulp and paper (for tissue, etc.), high yield sulphite, waste paper, deinl bleaching.

Bauer offers a full range of Double Revolving Disc Refiners, to provide the optimum in quality and production for all operating requirements.

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DIGESTERS	PRESSAFINERS	DOUBLE AND SINGLE DISC REFINERS
PUMP-THROUGH REFINERS	CENTRI-CLEANERS	COMPLETE HIGH YIELD BAUERITE SYSTEMS

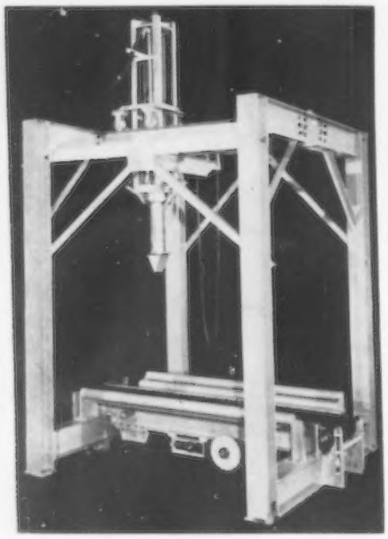
THE BAUER BROS. CO.

Springfield, Ohio

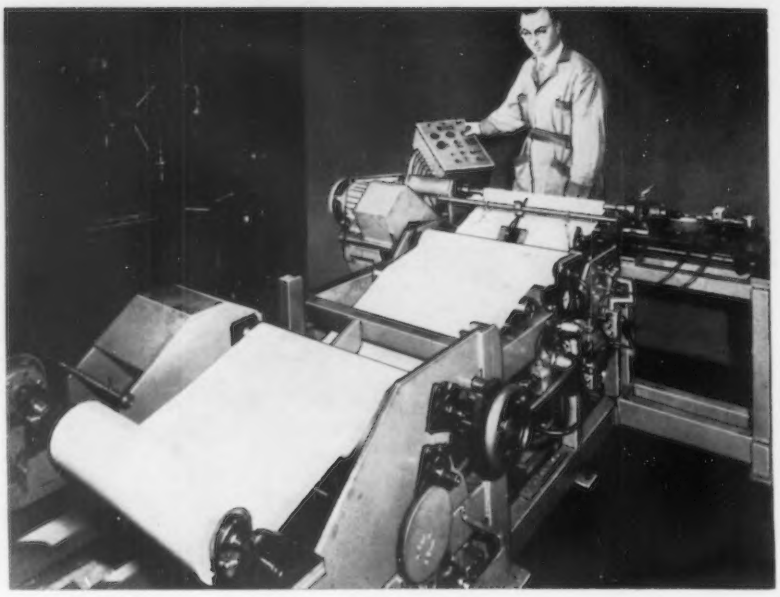
IN CANADA: THE BAUER BROS. CO. (CANADA) LTD.
Brantford, Ontario

many features on the winder itself contribute directly to roll quality control. Among these are the belt driven riding roll with down-pressure braking to assure firmly set cores and tight starts; automatic counterweighting; rewind drum grooving to help eliminate wrinkles; pneumatic expandable shafts; and a pneumatically operated roll ejector to guard against damage in unloading finished rolls.

The latest addition to the research equipment recently installed in this Cameron department is a 120-inch, two-drum winder rated at speeds up to 6000 f.p.m. Serving as a pilot model the winder can be fitted with any one of many different Cameron types of drives, unwinds, tension sensing systems, brakes, edge guides, and slitting elements, and with various control devices and other Cameron accessories. This is Cameron's systems concept in roll production equipment, with each element integrated all the way from unwind to rewind, and adapted to produce the specific types of rolls required. Cameron Machine Co., Franklin Rd., Dover, N. J.



ROLL BREAKER overcomes a long standing "bottleneck" in roll finishing production—laborious hand sawing or wedging of imperfectly slit rolls. The unit reduces the task to a one-man, power-assisted operation. The hydraulically-operated overhead wedge is supported on a frame that straddles the roll conveyor. Defective rolls are stopped momentarily as they come through the conveyor. The wedge is quickly aligned over the slit, then driven down to separate the rolls. Lamb-Grays Harbor Co., Inc., P.O. Box 359, Hoquiam, Wash.



Two Widths Simultaneously from Slitter

A high-speed production slitter-winder machine, developed by Web Controls Corp., offers tamper-proof adjustments and features a low-pressure, air-operated sensing head which can be set and locked, depending upon the width of the web. A magnetic proportioning brake, with bayonet lock and self-aligning pin, eliminates binding caused by misalignment. An electrical trimmer adjusts the stopping of the brake, holding the web edges in complete alignment regardless of web speed.

The slitter cartridge can be quickly removed and exchanged for burst, score, shear slitting or razor blade slitting. Slitter knives are open, in view and easily accessible. The slitting head and pull rollers are mounted in immediate proximity, to assure constant, even feed. A turret rewinder for continuous rewinding, without stopping the machine, may be provided.

Winding may be done either from the top or bottom by simply switching a removable gear. The winder main drive is electronically controlled from a centralized control panel. Stagger cuts on the individual rewind shaft are possible without interlocking spools and separator plates usually needed on heavy gauge webs.

This winder-slitter has application to laboratories, pilot plants and light production. It is available in 16, 20, 24, 30, 36, 48, 60 and 72 inch widths. Dept. S-W, 318 Briarcliffe Road, West Englewood, N. J.

Detects, Removes Faulty Sheets from Cutter Automatically

The Kohler Coating Machinery Corp., Greentown, Ohio, reports that its electronic paper sorter, known as Inspectasort, is now available. This machine scrutinizes the entire surface of a running web feeding into a sheet cutter, detects and "remembers" even the smallest objectionable flaws and imperfections, and diverts imperfect sheets into a "reject" pile after they have passed through the cutter.

The electronic detecting device on the Inspectasort scans across the width of the paper. Since it inspects only a minute area at a given instant, the signal produced by even a small defect such as a speck of dirt is quite large. This signal is conveyed to a "memory wheel" mounted on the cutter which automatically diverts sheets previously rejected by the electronic detector. The magnitude of signal which causes a reject may be adjusted and extraneous signals caused by electrical or mechanical vibrations are nullified by a patented circuit.

According to Kohler, the degree of reliability of the Inspectasort is extremely high. The control cabinet contains testing equipment which enables personnel who are not trained in electronics to determine the source of any trouble. All electronic components are of the plug-in, quick-

change type and most tubes are of the type to reduce the possibility of tube failure to a minimum. The equipment can be furnished to operate at speeds up to 1000 f.p.m., and can be applied to any make of sheet cutter. The Kohler Coating Machinery Corp., 9701 Cleveland Avenue, N.W., Greentown, Ohio.

Any Size Head from Same Cutter

Immediate availability of the "right-sized" head is the primary advantage of the paper head cutter manufactured by Lamb-Grays Harbor.

The machine, consisting of a bandsaw and a foot-controlled, air-operated pivot clamp, enables the operator to cut heads from stacks up to 6 inches thick in a few seconds time.

It will cut diameters of from 6 to ¾ inches up. Foot pedal control of the upper pivot clamp leaves the operator free to handle the stock with both hands.

The Lamb head cutter is said to obviate the need for maintaining a large inventory of different sized heads. The cutter itself requires from 30 to 50 sq. ft. of floor space, depending on the model. Sixty p.s.i. air supply is required. Various motor and equipment options are offered. Lamb-Grays Harbor Co., Inc., P. O. Box 359, Hoquiam, Wash.

Counts 1500 Sheets Per Minute, Inserts Tabs in Stack

Vacuumatic machines for counting paper are manufactured in several different sizes, but their overriding

for clearer colors at lower cost

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PURECAL O produces the whiteness in paper coatings to bring out the brightness in colors. It is the purest of precipitated calcium carbonates, and the whitest coating medium in its price range. It gives paper surfaces excellent finish and printability. Find out how this Wyandotte Key Chemical can help you hold the quality and cut the cost of coating.

WYANDOTTE CHEMICALS

MICHIGAN ALKALI DIVISION, WYANDOTTE, MICHIGAN

principles are the same. They have been designed as separate units, allowing counts to be introduced at any stage throughout the process. The machines count each individual sheet of paper and are in no way dependent on impressions or movement of the paper. This counting operation is performed by the simple medium of drawing each consecutive corner down by suction and then counting the corners during this process. Speed of counting is 1500 sheets per minute. Papers that can be counted range from 9 lb. onion skin up to 36 lb. ledger (17 x 55-500) or book papers from 25 to 100 lbs. (25 x 38-500). The counters operate on 220 V. 50 cycle a.c. or 110V, 60 cycle a.c. currents.

Each machine is fitted with a tape inserter which marks the pile at 100-250-500 counts. However, a multiple tape insert counter is now available as an optional that will insert tapes into the stack at any predetermined number of sheets from 9 to 999.

The Vacuumatic Mark VB is the latest model of the series. This model is designed to be a static installation to which skids of paper are brought for counting. In this way, apart from the very short period of time which elapses between the finishing of one stack and the starting of the next, the machine can be kept counting continuously. Since this machine counts from the bottom upwards, it is necessary for the paper stack to be positioned so that one of its corners lines up with a corner of the skid. Maximum height of the machine is 97 inches, length is 53 inches, and width is 48 inches.

The Vacuumatic Mark VI is a mobile stack counter which will count stacks up to 3½ feet in height and of any sheet size which is big enough to stack. Contrary to other Vacuumatic models the Mark VI starts at the top of the stack and works downwards. Thus it is possible to count stacks in the same position as they are delivered. The actual operation is comparatively simple inasmuch as it is only necessary, having first relieved the corner to be counted at suitable intervals to push the machine up to the stack, clamp the top sheets and having correctly positioned the counting head so that it will engage the first corner, start the machine running. Maximum height of the Mark VI is 96 inches, length is 58 inches and width is 46 inches. Vacuumatic North America, Inc., 822 Chrysler Bldg., New York 17, N. Y.

ROLL WINDER Model 70-B runs at speeds up to 1500 f.p.m. without slowing down during any part of the cycle. A wide range of roll hardnesses are obtained with one adjustment while maintaining constant web tension. Newly-developed perforator minimizes damage to blades. Airlift anvils simplify threading and reduce jam-up downtime. Automatic core loading and indexing attachment makes the winder a one-man operation. Hudson Sharp Machine Co., Green Bay, Wis.

Armco Welded Steel Pipe Can Help You Cut Waste Disposal Costs

Armco works two ways to help you cut costs on waste disposal lines:

(1) **Engineering.** Qualified Armco Sales Engineers will work with you in designing a complete system with Armco Welded Steel Pipe. This helps you reduce design time and costs.

(2) **Prefabrication.** Your waste disposal line arrives ready to install: wrapped, lined, coated and complete with bends and fittings. This greatly reduces installation time.

In addition to waste disposal systems, Armco Welded Steel Pipe can meet nearly any paper mill piping need.

For complete data, fill in and mail the coupon. An Armco Sales Engineer will call without cost or obligation.

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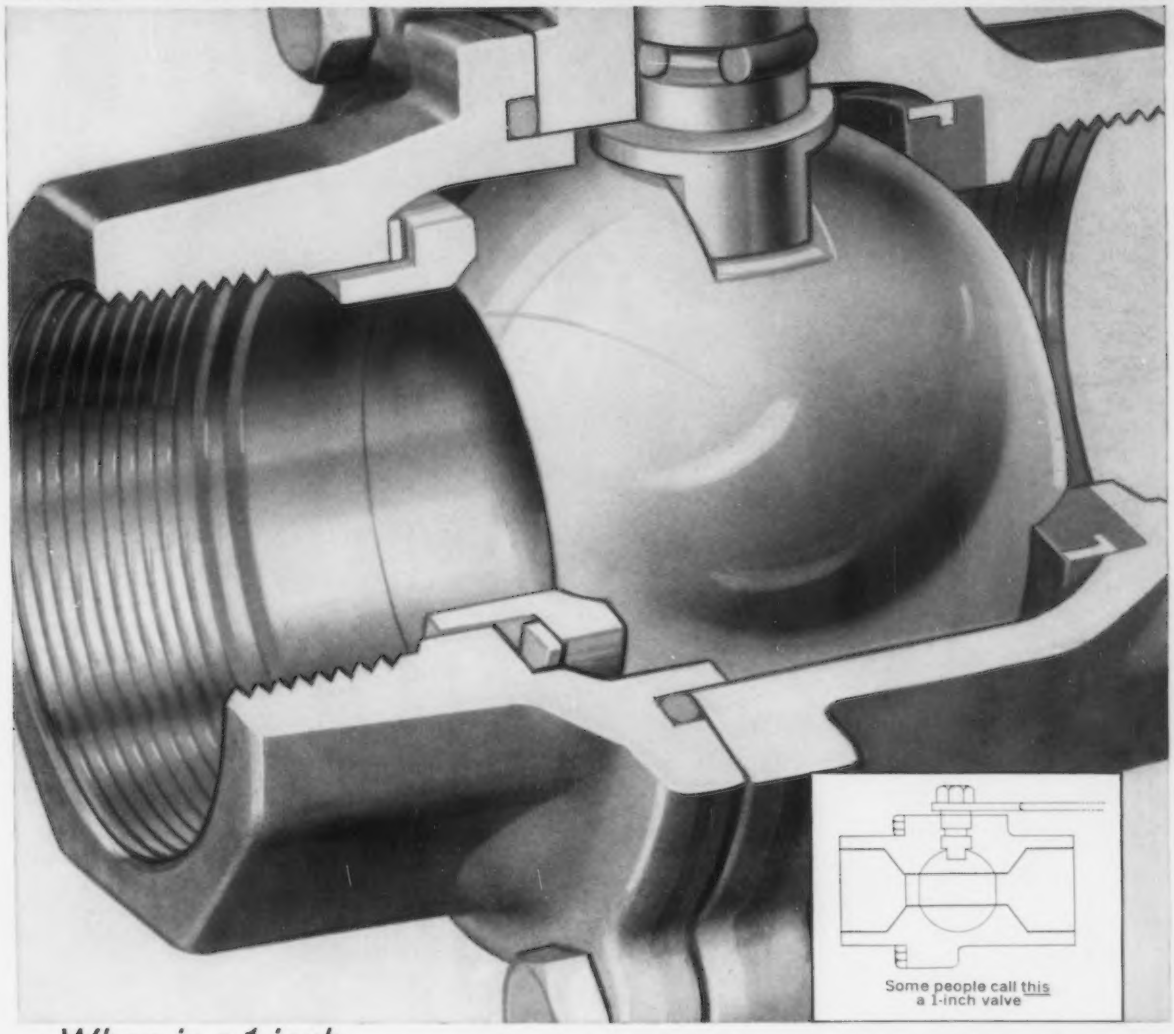
ARMCO Drainage & Metal Products

TAKE A CLOSE LOOK AT ROCKWOOD BALL VALVES



When is a 1-inch valve NOT a 1-inch valve?

When the waterway diameter of a ball valve is smaller than the pipe size you can't get perfectly smooth flow. If this difference is large, flow is more turbulent and pressure loss much greater. So it pays to compare waterway sizes before you buy any ball valve. You'll find that Rockwood ball valves have the largest waterway diameters — per given valve size. This means smoother, more economical operation in your line — whether you move liquid, gas or solids.

Rockwood Ball Valves have these other important advantages too.

Ruggedness — durably built for longer service under severe use.

Spring-loaded Ball Seats — compensate for wear, pressure change and temperature effects.

Choice — a wide range of design variations including metal castings of stainless steel, carbon steel or bronze; lever, gear, air, hydraulic or electric operators; standard or top entry types; rubber, Teflon, Kel F or nylon ball seats; flanged, sweat or screw ends — in a full range of pipe sizes from ⅜" to 14".

Reliability — Rockwood ball valves are manufactured by the pioneer in modern ball valve design and are both time- and use-proven in dependable operation and quality of construction.

Why not call in a Rockwood man today? He'll give you the complete Rockwood story. Write Rockwood Sprinkler Company, Ball Valve Department, 1004 Harlow Street, Worcester 5, Mass. Distributors in all principal industrial areas. Rockwood Sprinkler Company, A Division of The Gamewell Company, A Subsidiary of E. W. Bliss Company.

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Honeywell's split-body and globe-body control valves team up beautifully with Honeywell cylinder and diaphragm type actuators. Use either actuator with either valve. The beauty lies both in the economy and perfect matching to the application made possible by this interchangeability. The "mix and match" versatility of Honeywell valves and actuators lets you select the exact degree of performance you require. No need to push a valve beyond its design limits, on one hand, or to pay for more performance than you need, on the other. You get the best valve-actuator combination for a given application, at the lowest cost. The new Honeywell "Valve Size Computer" helps you make your *mix and match* selection . . . send for yours today. MINNEAPOLIS-HONEYWELL, Fort Washington, Pa.

Honeywell

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Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS PER CWT
WEEK ENDED APRIL 11

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	8.00/7.50
3	$7.25/6.75	$7.50/7.25	$7.50/7.00	7.25/6.75
4	6.75/6.00	6.50/6.25	6.50/6.25	6.50/6.25
5	6.00/5.50	5.75/5.50	6.00/5.50	5.75/5.50
6	5.50/4.50	5.25/5.00	5.25/5.00	4.50/4.25
7	4.50/4.00	4.50/4.25	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	April 17	April 17	April	April
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	11.00/ —	15.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	16.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ —	13.00/ —
Old Corrugated Containers	17.00/ 18.00	15.00/ 15.50	18.00/ —	16.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	28.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	30.00/ 32.50	30.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 70.00	47.50/ —	45.00/ —
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	42.50/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	10.00/ —	27.50/ 30.00
White Newsblanks	42.50/ 45.00	35.00/ 40.00	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 60.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	40.00/ 42.50	35.00/ —	35.00/ —
Manila Tab. Cards	57.50/ 60.00	55.00/ 60.00	55.00/ —	65.00/ —
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	35.00/ —	18.00/ —
White Ledger	45.00/ 50.00	42.00/ 47.00	45.00/ —	40.00/ —
Mixed Book & Mag.†	— / —	— / —	8.00/ —	— / —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	22.50/ —	8.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

OBITUARIES

William S. Allmond, III, 34, of Hopewell, Va., died suddenly April 10. Mr. Allmond, a sales engineer for Improved Machinery Inc., Nashua, N. H., was visiting at the home of his father-in-law in Wilmington, Del.

Edward Welsford Campbell, 58, retired Crown Zellerbach industrial relations expert, died in Vancouver General Hospital. He was vice president of public and industrial relations for Crown Zellerbach Canada, Ltd., until ill health forced his retirement in February 1958. He joined Crown Zellerbach in 1945.

Alan G. Goldsmith, 68, who retired in 1957 as vice president of the Mead Corp., paper products manufacturer, died March 30 in Middlesex Memorial Hospital, Middletown, Conn., after a short illness.

He joined Mead in 1925 in Dayton, Ohio, as secretary of an affiliate, the Mead Investment Co. Later, he was treasurer and secretary of the Mead Paperboard Corp., another affiliate.

From 1930 to 1937, Mr. Goldsmith was secretary of the parent company. He then became vice president.

Robert J. Kieckhefer, 78, founder and president of the American Lace Paper Co., Milwaukee, Wis., died of a heart attack April 5 at his home in Brookfield.

In 1916, Mr. Kieckhefer founded the American Lace Paper Co. He remained active in the firm until his death.

William N. Metz, 39, president of the Cleveland Acme Paper Co., died of a heart attack April 3. He was a graduate of John Carroll University and was associated with the Gardner Board and Carton Co. for six years before joining Acme.

R. George Morgan, 65, a vice president of the Upson Co. and official of two of its subsidiaries, died April 5.

Ernest W. Peterson, 75, retired superintendent at the Mosinee Paper Mills Co., died at Wausau (Wis.) Hospital April 4. A native of Norway, he came to the U.S. in 1904 and to Mosinee in 1911. He retired in 1950.

Edward E. Walden, 60, president and owner of Acme Paper Co. died April 7 in a Glendale hospital. A native of Iowa he was a resident of Glendale, Calif., for 36 years.

ZEOLEX IN PAPER

Reprinted from the new "Report on a Unique Pigment by the J. M. Huber Corporation Laboratories"

PROPERTIES IMPARTED BY VARIOUS PIGMENT COMBINATIONS IN BLEACHED SULPHITE HANDSHEETS

	75% SWW 25% TiO_2 (Control)		75% SWW 12½% TiO_2 12½% Z-23		75% SWW 17½% TiO_2 7½% Z-23		75% Sp. Hyd. 12½% TiO_2 12½% Z-23		75% Hydrafine 12½% TiO_2 12½% Z-23	
Pigment Loading Parts/100 of Pulp	4	14	4	14	4	14	4	14	4	14
PROPERTY										
Gurley Porosity, Secs./100 ml.	193	80	163	70	173	73	180	79	182	80
Gurley Softness, Secs./100 ml.	27	32	27	38	28	35	30	39	30	38
Gurley Smoothness, Secs./50 ml.	156	212	178	236	165	220	180	255	180	255
Mullen	42	27	41	26	41	26	40	26	39	25
Wax Pick (Dennison)	16	11½	16	11	16	11	15	10½	15	10

Costs were calculated as follows:

Clay—carload bulk prices per lb., F.O.B. Georgia.

SWW	0.60¢
Special Hydratex	1.10¢
Hydrafine	1.50¢

Arbitrary freight rate of 0.75¢/lb. was added to each.

Zeolex was priced at delivered cost of 7¢/lb. TiO_2 was priced at delivered cost of 25¢/lb.

PIGMENT COMBINATION	PIGMENT COST/100 LBS.	
75% SWW	$1.01	
25% TiO_2	6.25	**$7.26**
75% SWW	1.01	
17½% TiO_2	4.38	
7½% Zeolex	.53	**5.92**
75% SWW	1.01	
12½% TiO_2	3.13	
12½% Zeolex	.88	**5.02**
75% Special Hydratex	1.39	
12½% TiO_2	3.13	
12½% Zeolex	.88	**5.40**
75% Hydrafine	1.69	
12½% TiO_2	3.13	
12½% Zeolex	.88	**5.70**

Data [presented elsewhere in brochure] demonstrate that use of Zeolex together with an appropriate clay makes possible a considerable reduction in the use of TiO_2, thus substantially lowering the cost of pigmentation without sacrifice to sheet quality.

The foregoing tests were confined to the use of bleached sulphite pulp. However, the use of other chemical pulps or combinations of chemical pulps and ground wood yields more or less similar effects.

II. Tests on Handsheets composed principally of de-inked stock.

INGREDIENTS	FURNISH 1 With TiO_2 & Clay	FURNISH 1 With TiO_2 Zeolex & Clay	FURNISH 2 With TiO_2 & Clay	FURNISH 2 With TiO_2 Zeolex & Clay
De-inked Stocks	84.3 parts	84.3 parts	84.3 parts	84.3 parts
Virgin Pulp (chemical)	15.7 "	15.7 "	15.7 "	15.7 "
Clay, Huber SWW	2.2 "	2.2 "	12.9 "	12.9 "
TiO_2, Anatase	2.9 "	1.93 "	2.9 "	1.93 "
Zeolex	—	.97 "	—	.97 "
Rosin Size	1.0 "	1.0 "	1.0 "	1.0 "
Starch	1.0 "	1.0 "	1.0 "	1.0 "

Sufficient alum was introduced to adjust furnish pH to 4.5.

Handsheets were made in accordance with TAPPI standards.

A comparison of optical properties between titanium dioxide stocks and titanium dioxide-Zeolex stocks is shown in Table IV of brochure.

Here, again, in a distinctly different application, it appears possible to replace one third of the titanium dioxide with Zeolex without appreciable change to optical qualities.

For your complete copy of this twelve-page brochure, use coupon below.

ZEOLEX

ZEOLEX IN PAPER

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Havre de Grace, Maryland

Paper Division

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Company_____

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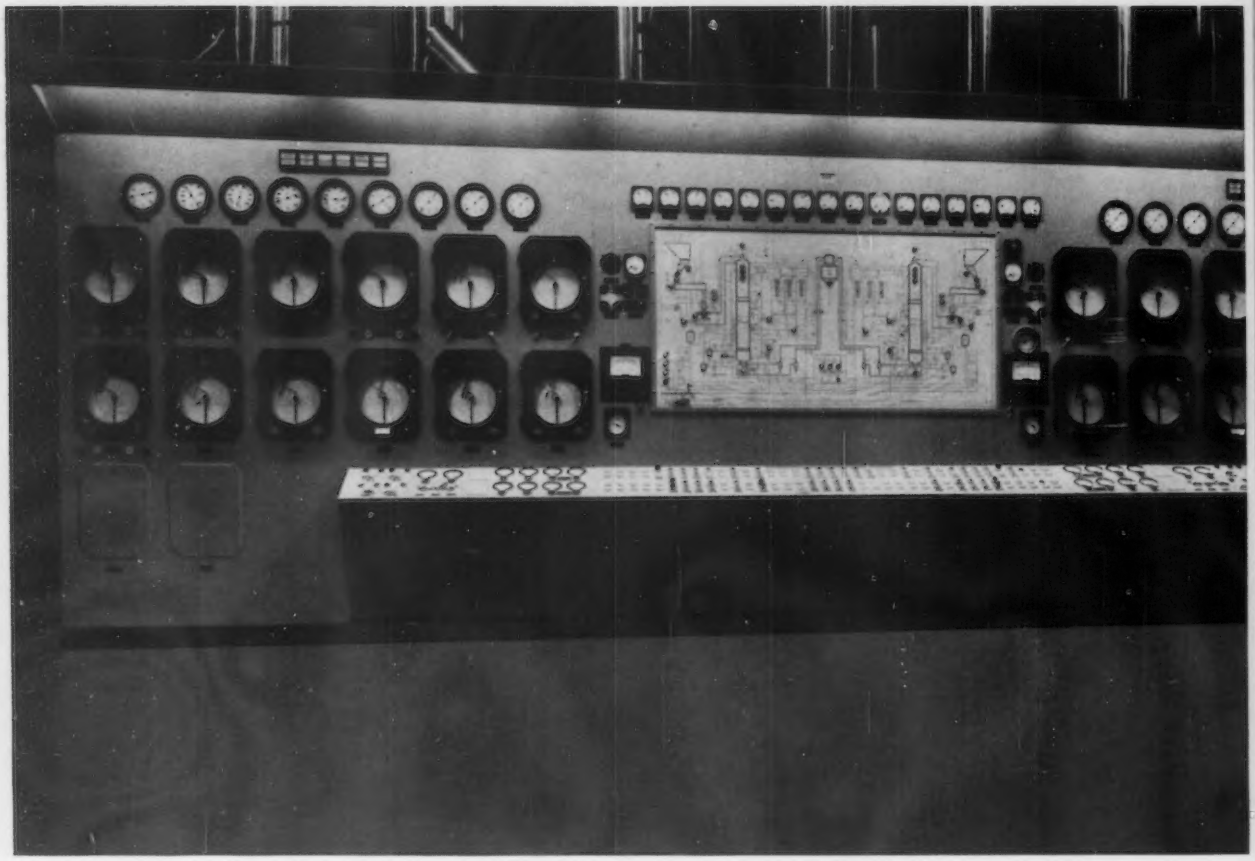
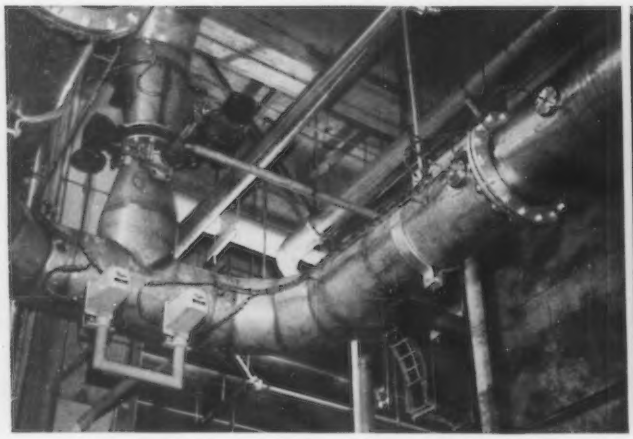
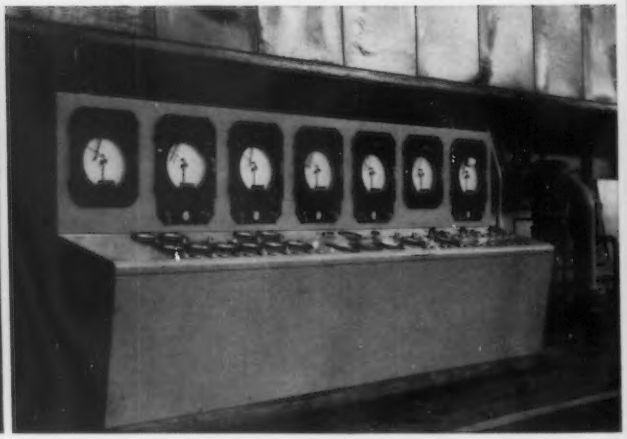


Control panel for Kamyr Double Unit Continuous Digester System at Celgar Limited's new mill at Castlegar, B. C.

CELGAR FEATURES HIGH

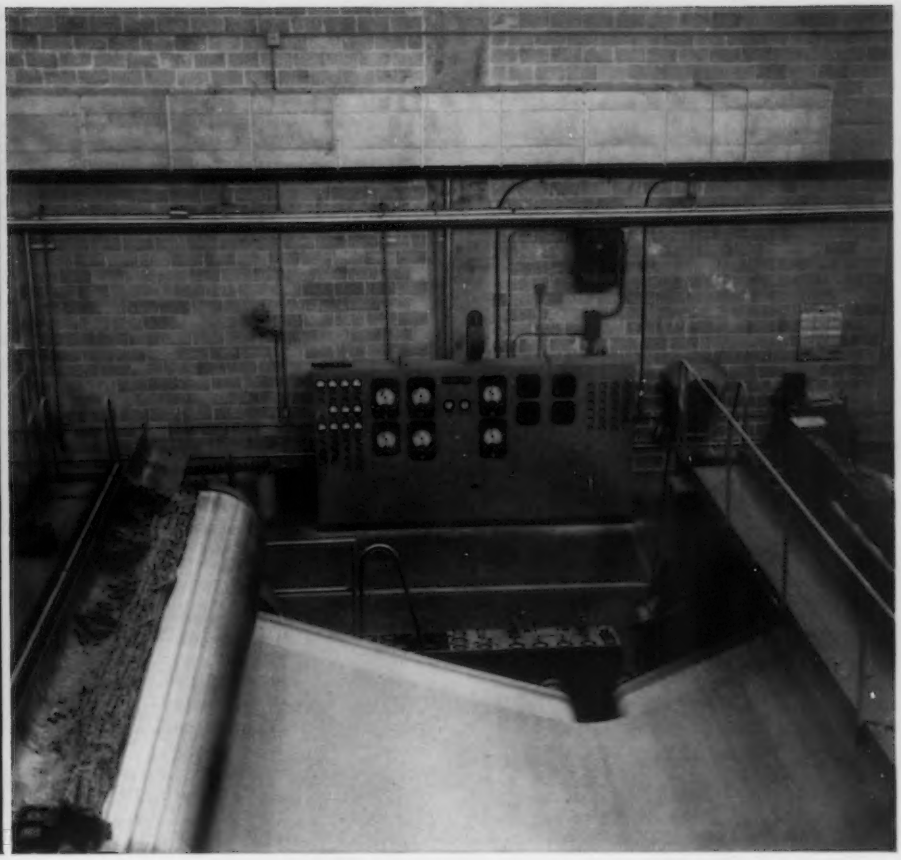


Stock flow and line loss consistency are measured by Taylor Volumetric Flow Transmitters.



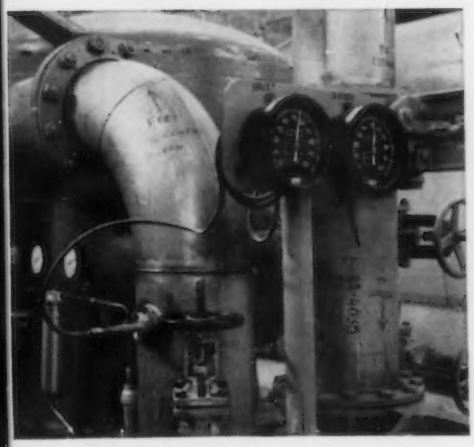
Taylor FULSCOPE* *Recording Controllers automatically regulate Brown Stock Washing.*

Taylor Instruments



Machine-room Wet End control panel.

EFFICIENCY WITH TAYLOR CONTROL



Taylor Volumetric Pressure Indicators on Stock Feed to Screens.

In Arrow Lakes district of the Columbia River Valley, Celgar Limited's new mill at Castlegar, B. C. had to be as fully automated as possible to reduce costs and remain competitive with tide water mills. The 500-ton per day mill is designed to produce very high quality bleached sulphate pulp.

All pulp and chemical processes are under Taylor control. Not shown here are Taylor control systems for Brown Stock Washing, Screening and Cleaning; five-stage Bleach Plant; Stock Preparation Area; Machine Room instrumentation; Black Liquor Evaporators and Chemical Preparation; Recausticizing System.

H. A. Simons Ltd., Consulting Engineer, Vancouver, B. C., under Celgar's direction, was responsible for the engineering design and construction of the mill. Taylor Instrument Companies of Canada Ltd. collaborated with Simons and provided start-up service. According to Mr. D. M. Morrison, in charge of instrumentation at the new mill, "on start-up the instruments behaved well. . . . We were well pleased with new Lin-E-Aire* valves."

Taylor's wide experience in the pulp and paper industry could be invaluable to you. Why not call your local Taylor Field Engin er? Taylor Instrument Companies, Rochester, N. Y., and Toronto, Ontario.

*Reg. U.S. Pat. Off.

MEAN ACCURACY FIRST

PJT NEWS OF SUPPLIERS

ALBANY FELT OFFICERS PROMOTED—L. to r. are Albert C. Cramer, new vice-president; John C. Standish, board chairman and retiring president; Everett C. Reed, newly elected president; Z. J. Chagnon and J. Spencer Standish, executive vice-presidents, and Douglas P. Bridge, newly elected secretary.

Albany Felt Co., Albany, N. Y., has announced the appointment of Everett C. Reed as president of the multi-plant operation, succeeding John C. Standish who continues as chairman of the board.

Mr. Reed joined the company upon graduation from Lowell Technological Institute, advanced to Albany plant manager in 1953, was elected an officer in 1954, and promoted to vice president — manufacturing in 1957. Last November he was named executive vice president.

Other promotions announced are: Z. J. Chagnon and J. Spencer Standish to executive vice presidents; Albert C. Cramer, vice president (he will retain his post as assistant to the president), and Douglas P. Bridge as secretary.

Albany Felt is a leading manufacturer of felts for the paper industry and other specialized industrial fabrics. Plants are located at Albany and Hoosick Falls, N. Y., North Monmouth, Me.; St. Stephen, S. C.; and foreign subsidiaries in Cowansville, Quebec, Canada; and at Cuautitlan, Mexico. It also has a minority interest and working agreement with Nordiska Maskinfilt A. B. Halmstad, Sweden—one of the largest European felt manufacturers.

Midwest Piping Co., Inc., stockholders, at a special meeting held in St. Louis, approved the sale of substantially all Midwest's assets to Crane Co. of Chicago, Ill.

According to O. P. Carter, president of Midwest, holders of more than 82 per cent of Midwest common shares voted in favor of the sale to Crane Co. The exact amount to be paid by Crane Co. for Midwest's plant, property and equipment cannot be determined until final audits are completed, but Mr. Carter estimates the transaction will involve more than $18,000,000.

Crane Co. plans to continue the present management and sales policies under the direction of Mr. Carter who has been with Midwest for more than 30 years and its president since 1958. The company will be known as Midwest Piping Division, Crane Co.

Hyster Co., Portland, Ore., announces that Glenn Herz and James L. Woodley have been elected vice presidents. Mr. Herz was named vice president—engineering, and Mr. Woodley became vice president—manufacturing.

Mr. Herz is a veteran of 15 years service with Hyster and served as chief engineer since 1958. He previously served as testing division supervisor and assistant chief engineer. A specialist in machinery design and materials handling equipment, he has been active in the development of many of Hyster's new products.

Mr. Woodley joined Hyster in 1945 as assistant plant manager at Danville, Ill. He later came to Portland as general parts and service manager, returning to Danville in 1955 as plant manager. He was brought back to Portland in 1960 as manager —manufacturing, the post he held prior to election as vice president. Mr. Woodley supervises manufacturing in all Hyster plans.

Both men are located at Hyster Co.'s general office in Portland, Ore.

Hyster industrial trucks, tractor equipment and heavy-duty trailers are manufactured in four domestic plants and at four overseas locations.

Manchester Machine Co., Middletown, Ohio, has promoted Ralph B. Phibbs to machining foreman and Maxim M. Stransky to chief draftsman. Manchester manufactures papermaking machinery, supplying all machine room components.

AB Karlstads Mekaniska Werkstad (KMW) has appointed Hugo Lindblad chief engineer and head of the sales department for pulp and paper machinery effective April 1. Mr. Lindblad, who succeeds Uno Wimmerstedt, is a graduate of the Royal Institute of Technology in Stockholm.

Before joining KMW on August 1, 1958, Mr. Lindblad was for six years head of the French subsidiary Regulator AB Billman, Stockholm.

Mr. Wimmerstadt, who for reasons of health, gave up this position, will remain with the company to handle special duties.

Hugo Linblad

E. E. Sproul

Northeastern Paper Sales, Inc., announces that Earle E. Sproul, II, has joined its pulp sales division. Mr. Sproul was previously with Riordon Sales Corp., Ltd. Mr. Sproul will be responsible for pulp sales in the Mid-Western and Mid-Atlantic states. Northeastern Paper Sales is the exclusive sales representative for Gaspesia Sulphite Co., Ltd., and Anglo-Newfoundland Development Co., Ltd.

Crosfield Electronics, Inc., has acquired the exclusive sales franchise in the U.S. for the complete line of Vacuumatic high-speed, automatic sheet counting machines. These machines are designed and manufactured by Vacuumatic, Ltd., of Harwich, England.

The Vacuumatic line includes a variety of high speed, automatic

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sheet counters for 100 per cent accurate counting and tabbing of everything from paper currency and securities to stacked paper sheets on skids. The machines count accurately at speeds up to 1,500 units per minute while inserting tab markers at predetermined quantities from 6 to 999. These Vacuumatic counters and tabbers are widely used by paper mills, converters and printers, as well as by banks, government departments, defense agencies and businesses concerned with accurate, tabbed counting for financial or security purposes.

Vacuumatics subsidiary . . . Vacumatic North America, Inc., will continue to handle installations, parts and servicing in the U. S. The present N. Y. C. office will be moved to Crosfield Electronics' plant at Westbury, N. Y., for greater coordination.

Chlor-Alkali Division of Food Machinery and Chemical Corp. has named William M. Clark sales manager for the southern district with headquarters at Charlotte, N. C., and William D. Neese sales manager for the mid-southern district with headquarters at Cincinnati, Ohio.

Mr. Clark joined FMC in 1952 and has served as a salesman in the Charlotte area since then. He is a graduate of North Carolina State College, majoring in textiles.

Mr. Neese has been with the company as a salesman in the Chicago area since 1957. He graduated from Virginia Polytechnic Institute.

R. S. Schuba

C. E. Bellew

Hewitt-Robins Inc., has named R. S. Schuba Detroit district manager with responsibility for the marketing of Hewitt-Robins conveyor machinery, power transmission equipment and industrial rubber products in Detroit, Lansing, Flint, Saginaw, Grand Rapids, Kalamazoo, South Bend and surrounding areas.

Mr. Schuba was formerly in charge of sales in Louisville, Ky. He attended the University of Richmond and Illinois Institute of Technology.

Garlock Inc., Palmyra, N. Y., has appointed C. Edward Bellew manager of its manufacturing division. For the past two years he has been vice president and general manager of the Baltimore Steel Co. and prior to that was associated with the United States Rubber Co. in various manufacturing and marketing capacities.

Mr. Bellew fills the position made vacant by the unexpected death of Garlock vice president, Donald F. Fraser, on September 12, 1960.

A. E. Staley Manufacturing Co.'s market development division announces promotion of Paul E. Di Benedetti to market development representative in the paper section.

Mr. Di Benedetti has been in commercial development work with the U B S Chemical Co. in Cambridge, Mass., a division of Staley's. In his new position, he will serve the paper industry in the Eastern U.S. and introduce new products for the industry from Staley's.

A native of Cambridge, Mr. Di Benedetti attended Boston University where he majored in chemistry before joining the U B S polymer research program in 1956.

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★ REDUCES SOLIDS CARRYOVER
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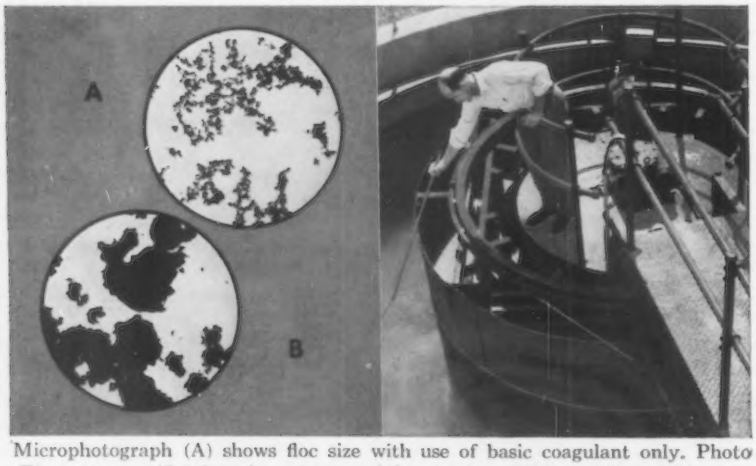
★ IMPROVES EFFECTIVENESS OF BASIC COAGULANTS



Microphotograph (A) shows floc size with use of basic coagulant only. Photo (B), same magnification, shows increased floc size by addition of Mogul Claracel.

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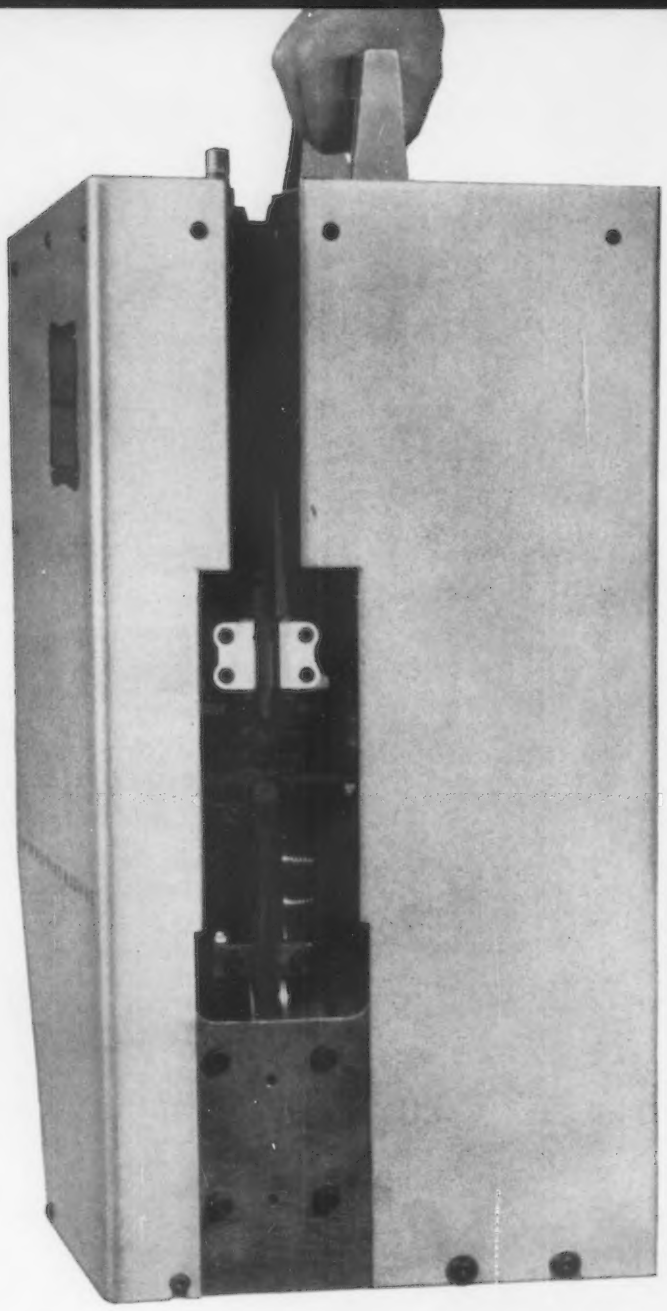

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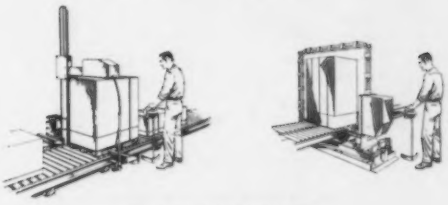
Call your Acme Idea Man for a quick *carry-in* demonstration. See how the new F7 can handle your packaging operation at a greater profit. Or, return the coupon for full facts.

A HALF DOZEN WAYS



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●
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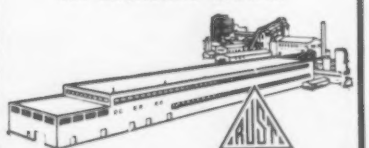
CHARLOTTE, NORTH CAROLINA

PRODUCTIVE LANDMARKS
for Economic Growth



THE RUST ENGINEERING CO.
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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Mar. 11	Mar. 18	Mar. 25	Apr. 1	Apr. 8
1961	92.0	91.3	91.1	90.4r	87.7
	Mar. 12	**Mar. 19**	**Mar. 26**	**Apr. 2**	**Apr. 9**
1960	97.6	98.7	99.0	97.9	96.6

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.9	90.0	91.1‡										

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	94.1	96.3	101.0	96.0	88.6	90.6	97.4	89.6
Year Average	91.6	96.2	97.9	90.4	87.0	92.2	92.8	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Mar. 11	Mar. 18	Mar. 25	Apr. 1	Apr. 8
1961	93	91	91	91	86
	Mar. 12	**Mar. 19**	**Mar. 26**	**Apr. 2**	**Apr. 9**
1960	94	94	93	91	94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88	89	91										

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING April 1, 1961	WEEK ENDING April 8, 1961	CUMULATIVE TO DATE Jan. 1, 1961, to April 8, 1961
% Activity	91%	86%	89%
Total	320,592	305,857	4,224,797
Containerboard—Domestic Use	162,607	156,553	2,136,638
Liner	107,866	106,459	1,419,252
Corrugating Material	48,547	46,190	650,406
Chip & Filler Board	6,194	3,904	66,980
Boxboard—Domestic Use	99,229	97,015	1,330,836
Folding	55,162	56,477	785,443
Set-Up	11,103	8,352	129,664
Special Food Board	32,964	32,186	415,729
Other Paperboard	58,756	52,289	757,323
Containerboard Type	26,506	26,765	360,344
Boxboard Type	32,250	25,524	396,979
Total Orders			
Received	335,296	325,808	
Unfilled End of Week	440,723	459,067	

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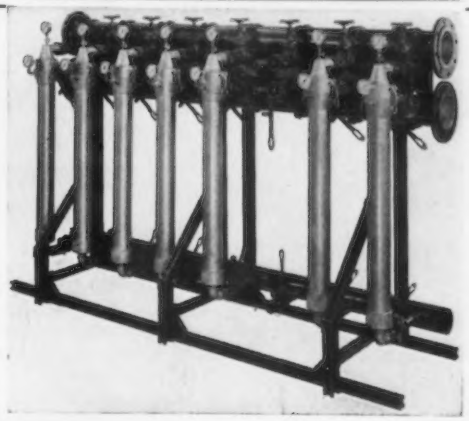

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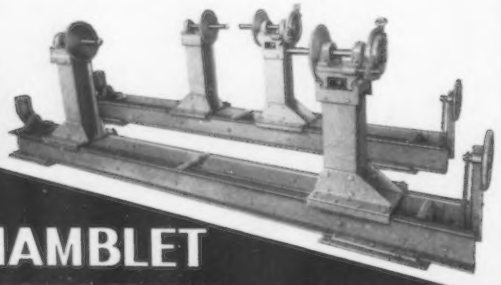

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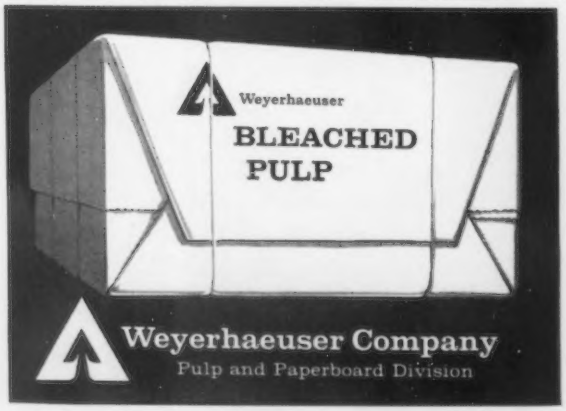

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Mill located about ten miles from Center Philadelphia in Montgomery County, Pennsylvania, in an area with wide choice of desirable living conditions.

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M-8

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550 VOLT MOTORS

1—G.E. Induction motor, 15 HP, 900 rpm, 550 volts, 60 cycle, form F, model No. 14837, type K 336-8-15-900, 15. 5 amps. No. 4825292, totally enclosed, externally cooled. (#123)

1—Louis Allis motor, 20 HP, 880 rpm, 550 volt, 60 cycle, 3 phase, type FX, frame 405, class 3C, form B, no. 362703 (#124)

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1—Crocker Wheeler 30 HP, 1175 rpm, 550 volts, 60 cycle, 3 phase, code F DES-B, frame BA-405, No. KB 26101002 (#134)

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1—G.E. D.C. Motor, 400-800 rpm, 30 to 60 HP, 230 volts, serial 625612, form A, type RLC 205-6, 30/60 HP, amps 115/230 (#127)

1—G.E. D.C. generator, 1200 rpm, type RC-15, form A, 250 volts, serial 661241, shunt wound connected to GE synchronous motor, 84 HP, 1200 rpm, 550 volts, 60 cycles, form PB, 1200 KVA, type ATI-6-62-5 (#126)

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A-24

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INSULATING BOARD PLANT

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A-24

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Applicant must be between 35 and 50 years, with engineering or chemical training, and must have a highly successful operational and managerial background in the newsprint field.

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Submit complete details pertaining to education, experience, family, and salary requirements. Knowledge of Spanish or Portuguese desirable but not essential.

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2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54″ x 48″, cast iron tubs

CALENDER STACKS
1—3 roll 84″ face
1—4 roll 72″ face (Extra heavy duty)
1—5 roll 86″ face

CHIPPERS
1—96″ Murray 4 knife Chipper—anti-fr[illegible]n bearings
1—84″ 10 knife Carthage Chipper, Anti-friction bearings, with motor

COATERS
1—27″ High Solid Coater
1—42″ Chapman Extrusion Type Coater

CRUSHER & HAMMERMILL
1—Murray Chip Crusher
1—Williams Hammermill
1—Jeffrey Shredder

CYLINDER MOLDS
5—36″ diameter x 75″ face, with couch rolls
1—36″ diameter x 82″ face
1—42″ diameter x 96″ face
2—42″ diameter x 106″ face
2—60″ diameter x 170″ face

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1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive
2—Falk Drives, 20 H.P. & 160 H.P.

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1—16″ diameter x 54″ face (steel)
1—28″ diameter x 84″ face
1—28″ diameter x 48″ face
2—Calender Dryers, bronze, 30″ x 128″ with frames, gears & necessary rolls to make up the unit.
1—36″ diameter x 44″ face
5—36″ diameter x 76″ face
23—36″ diameter x 84″ face
14—48″ diameter x 48″ face with bearings
2—48″ diameter x 52″ face with frames, gears, bearings
2—48″ x 60″ face frames, gears & bearings
1—48″ diameter x 108″ face.
6—48″ diameter x 130″ face
1—60″ diameter x 92″ face, anti-friction bearings

EMBOSSING CALENDERS
1—43″ 3-roll Embossing Calender
1—48″ 2-roll Meadows Embossing Calender
1—51½″ 3-roll Smoothing Calender
1—57″ 3-roll Embossing Calender
1—62″ 2-roll Embosser
1—90″ 2-roll Smoothing Calender

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1—Oliver, 8 ft. x 12 ft., rubber lined, complete
1—Oliver Filter 8 ft. x 8 ft.
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump

FLAT SCREENS
1—12 Plate "Packer"
4—14 Plate IMPCO, bronze vats

JORDANS
2—#1 Jones High Speed Jordans, Stainless steel tackle, A.-F. Bearings, motors.
1—#1 Jones High Speed Jordan
1—Jones Standard, new spare tackle, with 75 h.p. motor
1—Noble & Wood Monarch, Type D, anti-friction bearings
1—Noble & Wood Mammoth Jr., with spare plug
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor
1—#6 Miami, anti-friction bearings

KNIFE GRINDER
1—70″ Seybold

LABORATORY EQUIPMENT
1—4″ face x 36″ diameter Saveall
1—Washer for 5 lb. Beater
1—24″ Saveall, stainless steel
1—20″ Fourdrinier Wet End & Press Section
1—Noble & Wood Cycle Beater with motor & stand
1—Williams Freeness Tester.
1—Cady Micrometer
7—Mullen Testers, motorized & hand operated
1—2 qt. Auto Clave, Stainless Steel
1—Elmendorf Tear Tester
1—27″ High Solid Coater
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor
2—Emerson, Jr., No. 1 Jordans, anti-friction bearings

MISCELLANEOUS
1—Shartle Hydrafuge, 1000 g.p.m. (with motor)

MOTORS
4—25 h.p. Westinghouse, totally enclosed, ball bearing, 705 r.p.m.

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1—7″ Pressafiner, stainless steel construction, New 1955, with new spare motor

PRESS ROLLS
2—Chilled iron, chrome plated 9″ x 72″
1—Chilled iron, chrome plated 10″ x 74″

PULPERS
1—#1 Jones Pulp Master

PUMPS
1—Economy Fan Pump 6000 g.p.m. 20′ head, 50 h.p. motor

REELS
1—72″ Downingtown Reel, 2 bowl
1—84″ 3 bowl revolving reel
1—86″ 2 bowl reel
1—100″ Rice Barton 2 bowl reel, heavy duty
1—116″ Downingtown, 2 bowl, anti-friction bearings
1—123″ 3 bowl Revolving Reel
1—130″ Pope Reel (Rice Barton)
1—134″ 2 drum

REFINERS
1—Rice Barton Dynofiner, details on request
1—12″ Wiener Refiner, with 200 h.p. motor
2—36″ Bauer double disc #185E Refiners, each with two 100 h.p. motors
1—#4 Dilts Hydrafiner, anti friction bearings

ROLL HEADER
1—Valley Iron Roll Heading Machine, complete, for paper rolls 100″ long x 42″ diameter

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
4—#2A Bird Rotary Screens, copper vats
1—#2A—50 Bird, copper vat
2—APMEW Rotary Pulp Screens

SAVEALLS
1—#6 Bird Saveall.
1—24″ Continuous Saveall, stainless steel
1—LaMort 48″ diameter x 82″ face cylinder mold
2—Savealls, cylinder molds, 42″ diameter x 106″ face. brand new vats
1—Saveall, Rice Barton, cast iron vat, cylinder mold 48″ diameter x 128″ face, complete with 18″ diameter couch roll, all in very good condition

SHEETERS
1—160″ Hamblet, simplex, complete
1—160″ Hamblet, duplex, complete

SHREDDERS
1—16″ "Swift" Paper Shredder
2—Taylor Stiles Rag Cutters

SLITTERS & WINDERS
1—26″ Cameron Type 26-2A, with constant tension & electric eye.
4—42″ Cameron Type 6
1—42″ Cameron Type 9
1—42″ Cameron Type 26-2A
1—42″ Cameron Type 40-2
1—50″ Cameron Type 6
1—52″ Cameron Type 9.
1—86″ Two Drum Moore & White 50″ diameter rewind
1—96″ 4 drum Moore & White winder
1—64″ Waldron, Shear cut

SLITTING DEVICE
84″ Quick change slitting device shear cut, complete

SUCTION COUCH SHELL
1—Downingtown suction couch shell only. 127½″ face 26″ diameter

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1—Beloit 36″ diameter x 246″ face, SKF bearings

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1—Gilbert & Nash 122″ face

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1—Sandusky 18″ dia. x 138″ face Suction Press Roll

SUPER CALENDER STACK
1—9 Roll 56″

TOILET WINDER
1—72″ Hudson-Sharp (Surface type winder)

TRIMMERS
1—95″ Seybold Trimmer, Model 15ZJ

VACUUM PUMPS
2—#3 Nash Hytors
1—#4 Nash Hytor
1—#7 Nash Hytor, with 75 h.p. synchronous motor
1—H-7 Nash
2—K-5 Nash
2—L-4 Nash
3—L-5 Nash
1—L-6 Nash

VATS
2—Brand new Downingtown Iron End Vats, for 42″ diameter x 112″ face cylinder molds. Will cut down to your size.

VIBRATING SCREENS
1—Hummer Vibrating Screen, Stainless Steel
1—Selectro, 2 Stage, 5 ft. x 10 ft.

WET MACHINES
1—84″ IMPCO Wet Machine

YANKEE DRYERS
1—60″ diameter x 92″ face, anti-friction bearings
1—12 ft. diameter x 181½″ face

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M-1

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Manufacturers representative

contacting paper mills in Pennsylvania, New Jersey, Maryland and Delaware desires additional line. Write Box 61-73 care Paper Trade Journal.

M-1

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With my considerable experience, I am now prepared to set up a warehouse—form a selling organization and distribute in the Metropolitan Area, proven paper products that are unfinished, semi finished or finished.
Will do this on an outright sales basis—consignment, bonded warehouse or on a commission basis. Address Box 61-59 care Paper Trade Journal. A-24

FOR SALE

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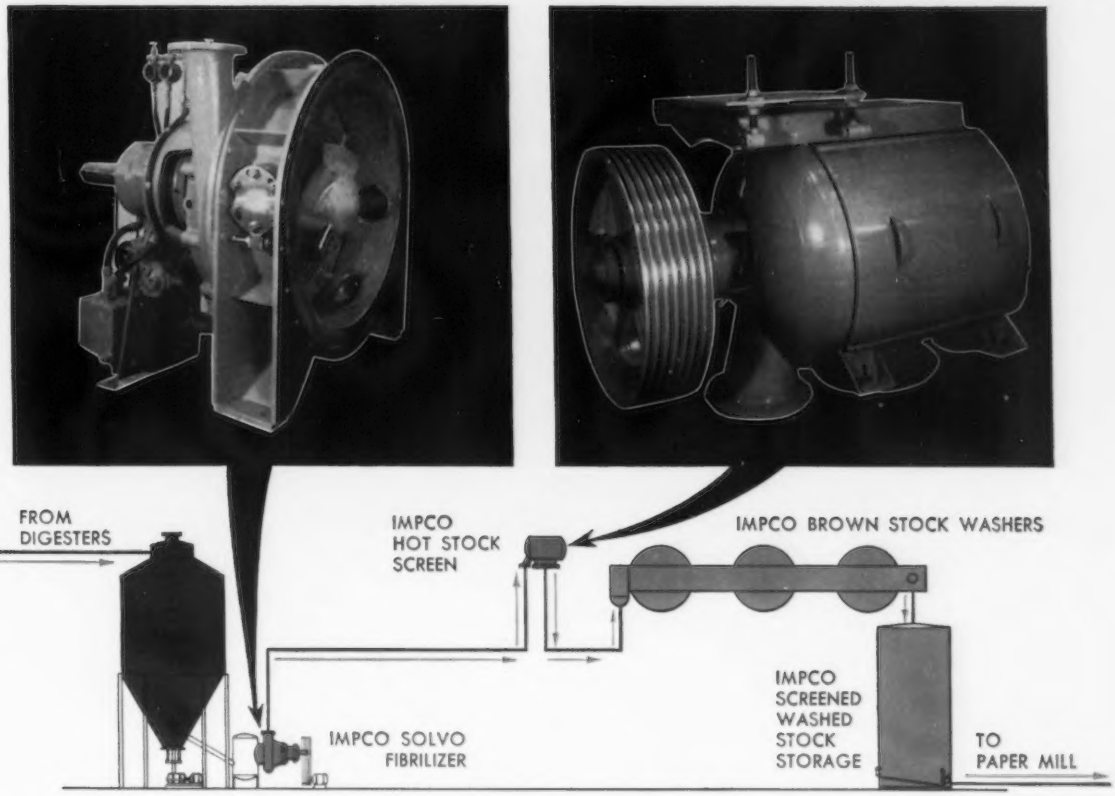

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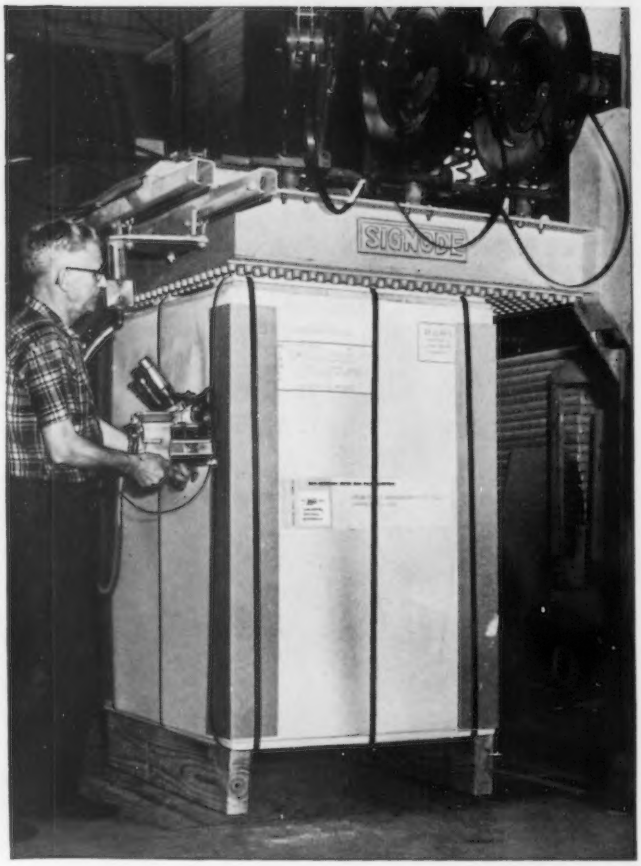

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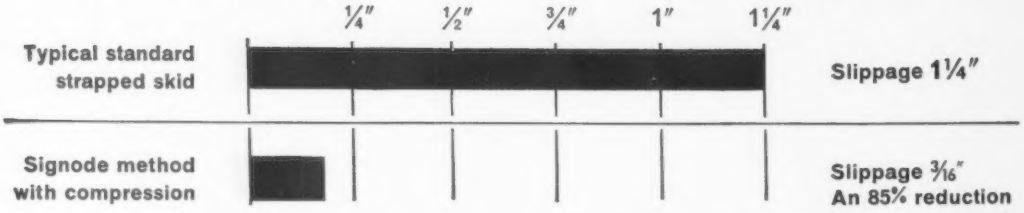

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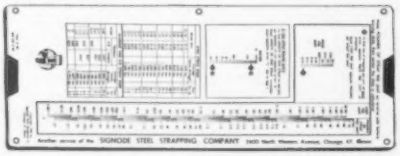

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